2011 Region C Water Plan

Volume 2 of 3

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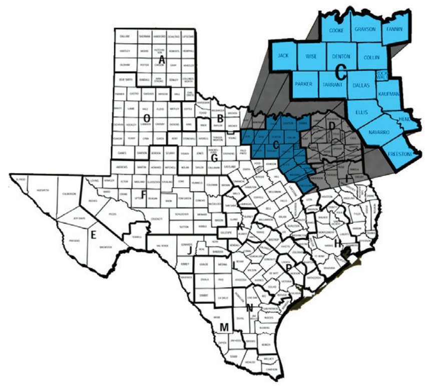
October 2010



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2011 Region C Water Plan

October 2010

Prepared for
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2011 Region C Water Plan

October 2010

Prepared for

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NTD08492

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APPENDIX B

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City of Decatur: *Revised Emergency Water Rationing Ordinance*, adopted July 27, 1998.

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City of Denison: *Water Conservation and Drought Contingency Plan*, April 2005.

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City of Duncanville: *Water Conservation Plan* September 9, 2007.

Dyegard Water Company: *Drought Contingency Plan*, July 24, 2000.

East Cedar Creek Fresh Water Supply District: *Conservation/Drought Contingency Plan*, December 6, 2005.

East Fork Special Utility District: *Drought Contingency Plan*, May 8, 2006.

Echo Valley Water Supply Corporation: *Drought Contingency and Emergency Water Demand Management Plan*, adopted August 17, 2000.

East Cedar Creek Water Fresh Water Supply District: *Water Conservation and Drought Contingency Plan*, July, 1993.

City of Ector: *Drought Contingency Plan*, April 2005.

Town of Edgecliff Village: *Water Conservation Plan and Emergency Water Management Plan*, adopted August 10, 2000.

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City of Ennis: *Drought Contingency Plan*, July 2005.

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City of Farmersville: *Drought Contingency Plan*, adopted April 10, 2007.

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Town of Flower Mound: *Water Conservation and Emergency Water Demand Management Plan*, adopted May 21, 2007.

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City of Frost: *Drought Contingency Plan*, adopted September 5, 2000.

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City of Garrett: *Drought Contingency Plan*, September 1, 2000.

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City of Grapevine: *Water Conservation and Emergency Demand Management Plan*, revised April 19, 2005.

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City of Grand Prairie: *Emergency Water Use Plan*, revised May 18, 1999.

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Gunter Rural Water Supply Corporation: *Drought Contingency Plan*, April 3, 2000.

City of Haltom City: *Water Conservation and Emergency Demand Management Plan*, January, 1999.

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City of Haslet: *Water Conservation and Drought Contingency Plan*, adopted May 8, 2000.

City of Heath: *Drought Contingency Plan*, August 17, 2000.

Heritage Oaks: *Drought Contingency Plan*, August, 2000.

Hickory Creek Special Utility District: *Drought Contingency Plan*.

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City of Highland Village: *Water Use Regulation/Drought Contingency Plan*, adopted August 8, 2007.

City of Highland Village, *Water Conservation/Drought Contingency Plan City of Highland Village*, May 2009.

Town of Highland Park: Water Conservation Plan, April 11, 2005.

Town of Highland Park: Drought Contingency Plan, April 11, 2005.

Town of Highland Park, *Drought Contingency Plan*, April 13, 2009.

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Highland Water Supply Corporation: *Drought Contingency Plan and Emergency Water Demand Management Plan*, adopted August 7, 2000.

Hillcrest Water: *Drought Contingency Plan*, August, 2000.

Hilltop Water Supply: *Drought Contingency Plan*, August 18, 2000.

City of Honey Grove: *Water Conservation and Drought Contingency Plan*, August 28, 2006.

Horseshoe Bend Water Works: *Drought Contingency Plan*, July 24, 2000.

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City of Howe: *Water Conservation and Emergency Water Demand Management Plan*, October, 2000.

City of Howe: *Water Conservation and Drought Contingency Plan*, May 2005.

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City of Hudson Oaks: *Drought Contingency Plan*, amended February, 2002.

City of Hutchins: *Drought Contingency Plan*, April, 2006.

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City of Irving: *Emergency Water Management Plan*, adopted April 21, 2005.

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City of Justin: *Water Conservation Plan and Drought Contingency Plan*, revised February, 1989.

City of Kaufman: *Drought Contingency Plan*, October 22, 2005.

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City of Keller, *Drought Contingency & Emergency Water Management Plan, PWS#2200096*, May 5, 2009.

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City of Kemp: *Drought Contingency Plan*. May, 27 2005.

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City of Kerens: *Drought Contingency Plan*.

Kiowa Homeowners Water Supply Corporation: *Drought Contingency Plan*, August 24, 2000.

Knob Hill Water System: *Drought Contingency Plan*, August 23, 2000.

City of Ladonia: *Water Conservation and Drought Contingency Plan*, October, 1994.

Lake Cities Municipal Utility Authority: *Water Conservation Plan and Emergency Water Demand Management Plan*, January, 2003.

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City of Lake Worth: *Water Conservation and Emergency Water Demand Management Plan*, February 8, 1994.

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City of Lake Worth, *Water Conservation Plan*, May 2009.

City of Lancaster, *Water Conservation and Drought Contingency and Water Emergency Response Plan*, Jun 2009

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Lakecrest Estates: *Drought Contingency Plan*, August, 2000.

Lakeshore Utility Co., Inc.: *Drought Contingency Plan*, October 24, 2000.

Town of Lakeside: *Ordinance No. 160*, regulating water use during times of shortage, adopted September 9, 1993.

Lakewood Water Corporation: *Drought Contingency Plan*, August 29, 2000.

City of Lewisville: *Water Conservation and Emergency Water Management Plan,* May 18, 2009.

Town of Lindsay: *Drought Contingency Plan*, November, 2000.

Lindsay Pure Water Company: *Drought Contingency Plan*, August, 2000.

Town of Little Elm: *Water Conservation and Drought Contingency Plan*, March 4, 2007.

Longhorn Water Company: *Drought Contingency Plan*, August 10, 2000.

City of Lucas: *Emergency Water Management Plan*, January 3, 2000.

City of Lucas, *Drought Contingency Plan*, April 16, 2009.

Luella Water Supply Corporation: *Drought Contingency and Emergency Water Demand Management Plan*.

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MacBee Water Supply Corporation: *Conservation and Drought Contingency Plan for Wholesale Customers*, revised November, 2001.

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City of Mansfield: *Water Conservation Plan*, 2007.

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Mathews Road Water Supply Corp.: *Drought Contingency Plan*, October 26, 2000.

McKee Water Service: *Drought Contingency Plan*, January, 2001.

City of McKinney: *Draft Drought Contingency Plan*.

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MEN Water Supply Corporation: *Drought Contingency Plan*, August, 2006.

City of Melissa: *Water Conservation and Emergency Water Demand Management Plan*, January, 2000.

City of Melissa: *Drought Contingency Plan*, October, 2003.

City of Mesquite: *Water Conservation and Drought Contingency Plan*, adopted June 18, 2007.

City of Mesquite, *Ordinance No. 4043: Public Works Sections 16-12 through 16-14*, April 20, 2009

Mesa Grande Water Supply Corporation: *Drought Contingency and Emergency Water Demand Management Plan*, adopted August 8, 2000.

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Midway Water Utilities, Inc.: *Drought Contingency Plan*, August 11, 2000.

Milligan WSC: *Drought Contingency Plan*, June 5, 2006

Millsap Water Supply Corp.: *Drought Contingency Plan*, August 31, 2000.

City of Mineral Wells: *Water Conservation and Drought Contingency Plan*, amended, April 2005.

Moody Water System: *Drought Contingency Plan*, August 28, 2000.

Mountain Peak Water Supply Corporation: *Drought Contingency/Emergency Management and Conservation Plan*, adopted July 9, 2002.
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City of Murchison: *Drought Contingency Plan*, August 10, 2000.

City of Murphy: *Drought Contingency Plan*, August 7, 2006.

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Mustang Special Utility District, Water Conservation and Drought Contingency Plans, April 27 2009.

Myra Water System: *Drought Contingency Plan*, August 26, 2000.

Navarro Mills Reservoir: *Water Conservation Plan/Drought Contingency Plan*, prepared by Trinity River Authority of Texas, September 24, 1999.

City of Newark: *Drought Contingency Plan*, August, 2000.

North Collin Water Supply: *Drought Contingency Plan*, August 1, 2000.

North Farmersville Water Supply Corporation: *Drought Contingency Plan*, February, 2000.

North Hunt Water Supply Corporation: *Drought Contingency Plan*, November, 2002.

City of North Richland Hills: *Water Conservation and Emergency Water Demand Management Plan*, adopted May, 2005.

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Northtown Acres Water Supply: *Drought Contingency Plan*, August 29, 2000.

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Oak Bend Homeowners Water Supply: *Drought Contingency Plan*, September 1, 2000.

Oak Grove Texas Water Supply Corporation: *Drought Contingency Plan*, June 19, 2000.

Oak Ridge – South Gale Supply Corporation: *Drought Contingency Plan*, August 16, 2000.

Town of Oak Ridge: *Drought Contingency Plan*, September 2005.

Oakwood POA Water System: *Drought Contingency Plan*, July 6, 2000.

City of Ovilla: *Water Conservation Plan*, October 28, 1991.

P & M Service Company: *Drought Contingency Plan*, August 20, 2000.

City of Palmer, *City of Palmer Drought Contingency Plan*, June 2009.

Palo Duro Service Company, Inc.: *Drought Contingency Plan*, August 20, 2000.

City of Parker: *Emergency Water Management Plan*, amended August 13, 2002.

Parkerville East Water System: *Drought Contingency Plan*, July 12, 2000.

City of Pelican Bay: *Water Conservation Plan and Emergency Water Demand Management Plan*, July, 1997.

Sunset Water System: *Drought Contingency Plan*, March 1, 2002.

Pilot Point Rural Water Supply Corporation: *Drought Contingency Plan*, August 27, 2000.

Pink Hill Water Supply Corporation: *Drought Contingency Plan*, March 6, 2000.

Pinnacle Club Utility: *Drought Contingency Plan*, September 29, 2000.

Pioneer Valley Water Company: *Drought Contingency Plan*, September 1, 2003.

Pioneer Valley Water Company: *Drought Contingency Plan*, April 1, 2005.

City of Plano: *Ordinance 2001-12-19*, adopting a drought contingency plan and emergency water management plan, March 20, 2007.

Point Royal Water System: *Drought Contingency Plan*, July 26, 2000.

Town of Ponder: *Daily Water Conservation Plan*, August 3, 1998.

City of Pottsboro: *Water Conservation and Drought Contingency Plan*, December 5, 2006

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City of Princeton: *Drought Contingency Plan*, February, 2003.

City of Prosper: *Water Conservation and Emergency Water Demand Plan*, adopted July 9, 1996.

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City of Rhome: *Drought Contingency Plan*.

City of Richardson: *Emergency Water Management Plan*, adopted September 13, 1999.

City of Richland: *Drought Contingency Plan*, adopted August 10, 2000.

City of River Oaks: *Drought Contingency and Water Conservation Ordinance*, adopted April 25, 2000.

City of Roanoke: *Emergency Water Management Plan*, adopted December 14, 1999.

Rockett Water Supply Corporation: *Water Conservation Plan*, adopted March 13, 1989.

Rockett Special Utility District, *Water Conservation Plan & Drought Contingency Plan*, April 27, 2009.

City of Rockwall: *Drought Contingency Plan*, September, 1999.

City of Rockwall, *Water Conservation Plan*, May 18, 2009.

City of Rockwall, *Drought Contingency and Water Emergency Response Plan*, August 3, 2009.

Rollins Hills Estates Water Corporation: *Drought Contingency Plan*, July, 2000.

Rose Hill Special Utility District: *Water Conservation Plan*, May 26, 2006.

City of Rowlett: *Drought Contingency Plan*, adopted June 6, 2006.

City of Runaway Bay: *Water Conservation and Drought Contingency Plan*, adopted February, 1988.

Rural Bardwell Water Supply Corporation: *Drought Contingency Plan*, August 25, 2000.

S. A. Water, Inc.: *Drought Contingency Plan*, July 24, 2000.

Sabine River Authority of Texas: *Water Conservation and Drought Contingency Plan*, revised December 1999 and March 2002.

Saddle Club Water Company, Inc.: *Drought Contingency Plan*, July 24, 2000.

City of Sadler: *Drought Contingency Plan*, June 7, 2005.

City of Sanger: *Water Conservation and Drought Contingency Plan*, adopted September 19, 1994.

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Sardis – Lone Elm Water Supply Corporation, *Water Conservation Plan*, April 2009.

City of Savoy: *Drought Contingency Plan*, July, 2000.

City of Savoy: *Drought Contingency Plan*, May 2005.

City of Seagoville: *Water Conservation Plan and Drought Contingency Plan*, adopted March 23, 1989.

S-Estates Water Supply Corporation: *Drought Contingency and Emergency Water Demand Management Plan*, adopted July 18, 2000.

Seis Lagos Utility District: *Drought Contingency Plan*, September, 2000.
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City of Sherman: *Water Conservation and Drought Contingency Plan*, March, 2004.

City of Sherman: *Water Conservation and Drought Contingency Plan*, April 2005.

City of Sherman, *Water Conservation and Drought Contingency and Water Emergency Response Plan*, April 2009.

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South Ellis County Water Supply Corporation: *Drought Contingency Plan*, June 21, 2000.

City of Southlake: *Ordinance No. 662 B*, establishing a water conservation policy and drought contingency plan, effective January 20, 2006
City of Southlake, *Drought Contingency/Emergency Water Management Plan and Water Conservation Plan*, April 2009.

Southwest Fannin County Water Supply Corporation: *Drought Contingency Plan*, February, 2000.

South West Water Company, *User Drought Contingency Plan*, May 29, 2009.

Southlake Park Services, Inc.: *Drought Contingency Plan*, August 27, 2000.

City of Springtown: *Drought Contingency Plan*, January, 2000.

Starr Water Supply Corporation: *Drought Contingency Plan*, March, 2000.

Town of Sunnyvale: *Water Conservation Plan*, adopted August 18, 1984.

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Tarrant Regional Water District: *Water Conservation and Drought Contingency Plan*, June 19, 2007.

Tarrant Regional Water District, *Water Conservation and Drought Contingency Plan*, April 2009.

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City of Terrell, *Water Conservation Plan*, May 2009.

City of Terrell, *Drought Contingency and Water Emergency Response Plan,* May 2009.

Texas Water Systems Inc.: *Drought Contingency Plan*, August 25, 2000.

City of The Colony: *Drought Contingency Plan*, May 17, 2005.

The Oaks Water System: *Drought Contingency Plan*, August 31, 2000.

City of Tioga: *Water Conservation and Drought Contingency Plan*, July 2005.

City of Tioga: *Drought Contingency Plan*, July 2005.

City of Tom Bean: *Drought Contingency Plan*, May 9, 2005.

Treetop Utilities, Inc.: *Drought Contingency Plan*, August 23, 2000.

City of Trinidad: *Drought Contingency Plan*, August 3, 2000.

Trinity River Authority of Texas, *Five-Year Water Conservation and Drought Contingency Plans*, June 2009.

Bardwell Reservoir: *Water Conservation Plan/Drought Contingency Plan*, prepared by Trinity River Authority of Texas, September 24, 1999.

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Trophy Club Municipal Utility District: *Drought Contingency Plan*.

Two Way Special Utility District: *Drought Contingency Plan*, May 31, 2005.

Two Way Water Supply Corporation: *Drought Contingency Plan*, July, 2000.

Thompson Heights Development Company: *Drought Contingency Plan*, July 2, 2001.

Thompson Water and Construction: *Drought Management Plan*, no date provided.

Ten Mile Creek Regional Wastewater System: *Water Conservation and Emergency Water Demand Management Plan*, June 18, 1996.

Union Hill Water Company: *Drought Contingency Plan*, August 15, 2000.

City of University Park: *Water Conservation and Drought Contingency Plan*, April 20, 2005.

City of University Park, *Water Conservation Plan*, April 21, 2009

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Upper Trinity Regional Water District, *Water Conservation Plan, Updated*, May 2009.

Regional Treated Water System: *Water Conservation Plan and Emergency Water Demand Management Plan*, prepared by Upper Trinity Regional Water District, February, 2002.

Vacation Village Water Supply: *Drought Contingency Plan*, August 18, 2000.

City of Van Alsytne: *Drought Contingency Plan*, August, 2006.

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The Wallace Group, Inc.: *Draft City of Palmer Preliminary Constituents Report,* November 2001.

Walter J. Carroll Water Co.: *Drought Contingency Plan*, September 7, 2000.

Walnut Bend Independent School District: *Drought Contingency Plan*, July 12, 2005.

Walnut Creek Water Supply Corporation: *Water Conservation Plan*, adopted January 12, 1988.

Walnut Creek Special Utility District: *Drought Contingency Plan*, April 30, 2000.

City of Watauga: *Water Conservation and Emergency Water Demand Management Plan*, adopted June 24, 1996.

City of Watauga: *Water Conservation and Emergency Water Demand/Drought Contingency Plan,* April 2005.

City of Watauga *Drought Contingency Plan*, May 1, 2009

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City of Waxahachie: *Water Conservation Plan, adopted June 1, 2009.*

City of Waxahachie: Drought Contingency Plan, December 3, 2001.

City of Weatherford: *Water Conservation and Drought Contingency Plan*, August, 2006.

City of Weatherford, *2009 Water Conservation & Drought Contingency Plan*, April 2009.

West Cedar Creek MUD: *Water Conservation Plan*, adopted March 16, 1989.

West Cedar Creek MUD: *Drought Contingency Plan*, August 5, 1999.

West Leonard Water Supply Corporation: *Drought Contingency Plan*, May, 2000.

West Wise Rural Water Supply Corporation: *Drought Contingency Plan*, August 10, 1999.

West Wise Special Utility District, *Drought Contingency Plan for a Wholesale Public Water System*, August 25, 2009.

Westwood Utility Corporation: *Drought Contingency Plan*, July 5, 2000.

City of Whitesboro: *Emergency Water Demand Management Plan*, no date provided.

City of White Settlement: *Drought Contingency Plan*, revised December, 2001.

White Shed Water Supply Corporation: *Drought Contingency Plan*, adopted August 12, 2000.

White Shed WSC, *Drought Contingency Plan for White Shed WSC*, April 11, 2009.
City of Whitewright: *Drought Contingency Plan*, June 7, 2005.

Wildewood Water Company, Inc.: *Drought Contingency Plan*, August 10, 2000.

Town of Windom: *Drought Contingency Plan*, December 4, 1999.

Woodbine Water Supply Corp.: *Drought Contingency Plan*, August 15, 2000.

Woodvale Water Inc.: *Drought Contingency Plan*, September 1, 2000.

City of Wortham: *Water Conservation and Emergency Water Demand Management Plan*, July, 1998.

WSWS Company: *Drought Contingency Plan*, August 31, 2000.

City of Wylie: *Draft Drought Contingency Plan*, June 12, 2007.

APPENDIX C

SUMMARY TABLES FOR WATER USER GROUPS

Table C-1
Ables Springs Water Supply Corporation

Regions C and D (Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**5,227**	**7,046**	**8,956**	**11,153**	**14,106**	**17,943**
Projected Water Demand						
Municipal Demand	556	845	1,054	1,299	1,644	2,090
Total Projected Water Demand	***556***	***845***	***1,054***	***1,299***	***1,644***	***2,090***
Currently Available Water Supplies						
SRA sources (through MacBee SUD)	965	0	0	0	0	0
Total Current Supplies	***965***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***845***	***1,054***	***1,299***	***1,644***	***2,090***
Water Management Strategies						
Water Conservation	13	40	61	80	104	135
Connect to NTMWD and Purchase Water	0	560	560	560	560	560
Additional Delivery Capacity	0	245	433	659	980	1,395
Total Water Management Strategies	***13***	***845***	***1,054***	***1,299***	***1,644***	***2,090***
Reserve (Shortage)	**422**	**0**	**0**	**0**	**0**	**0**

Table C-2
Addison

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**16,000**	**20,534**	**22,358**	**23,629**	**24,515**	**25,133**
Projected Water Demand						
Municipal Demand	7,904	10,074	10,919	11,514	11,918	12,218
Total Projected Water Demand	***7,904***	***10,074***	***10,919***	***11,514***	***11,918***	***12,218***
Currently Available Water Supplies						
Dallas Water Utilities	7,268	7,565	7,832	7,753	7,404	6,674
Total Current Supplies	***7,268***	***7,565***	***7,832***	***7,753***	***7,404***	***6,674***
Need (Demand - Current Supply)	***636***	***2,509***	***3,087***	***3,761***	***4,514***	***5,544***
Water Management Strategies						
Water Conservation	189	351	478	600	721	841
Additional Water from DWU	447	2,158	2,609	3,161	3,793	4,703
Total Water Management Strategies	***636***	***2,509***	***3,087***	***3,761***	***4,514***	***5,544***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-3
Aledo

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,710**	**5,620**	**9,120**	**12,620**	**13,258**	**13,258**
Projected Water Demand						
Municipal Demand	455	957	1,532	2,106	2,213	2,213
Total Projected Water Demand	***455***	***957***	***1,532***	***2,106***	***2,213***	***2,213***
Currently Available Water Supplies						
Trinity Aquifer	501	501	501	501	501	501
Total Current Supplies	***501***	***501***	***501***	***501***	***501***	***501***
Need (Demand - Current Supply)	***0***	***456***	***1,031***	***1,605***	***1,712***	***1,712***
Water Management Strategies						
Water Conservation	10	68	131	199	228	247
Fort Worth (Tarrant Regional WD)	0	419	900	1,406	1,484	1,465
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***10***	***487***	***1,031***	***1,605***	***1,712***	***1,712***
Reserve (Shortage)	**56**	**31**	**0**	**0**	**0**	**0**

Table C-4
Allen

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**82,000**	**90,000**	**98,000**	**98,500**	**98,500**	**98,500**
Projected Water Demand						
Municipal Demand	20,207	24,699	27,663	27,694	27,694	27,694
Total Projected Water Demand	***20,207***	***24,699***	***27,663***	***27,694***	***27,694***	***27,694***
Currently Available Water Supplies						
North Texas Municipal Water District	19,809	20,103	19,555	17,589	15,905	14,783
Total Current Supplies	***19,809***	***20,103***	***19,555***	***17,589***	***15,905***	***14,783***
Need (Demand - Current Supply)	***398***	***4,596***	***8,108***	***10,105***	***11,789***	***12,911***
Water Management Strategies						
Water Conservation	398	1,459	2,090	2,347	2,579	2,810
Additional Water from NTMWD	0	3,137	6,018	7,758	9,210	10,101
Total Water Management Strategies	***398***	***4,596***	***8,108***	***10,105***	***11,789***	***12,911***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-5
Alvord

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,336**	**1,478**	**1,615**	**1,751**	**1,906**	**2,085**
Projected Water Demand						
Municipal Demand	199	214	228	243	263	287
Total Projected Water Demand	***199***	***214***	***228***	***243***	***263***	***287***
Currently Available Water Supplies						
Trinity Aquifer	316	316	316	316	316	316
Total Current Supplies	***316***	***316***	***316***	***316***	***316***	***316***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	7	10	12	14	17
West Wise SUD (TRWD)	0	150	150	150	150	150
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***157***	***160***	***162***	***164***	***167***
Reserve (Shortage)	**119**	**259**	**248**	**235**	**217**	**196**

Table C-6
Anna

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,000**	**14,000**	**21,000**	**28,000**	**36,000**	**60,000**
Projected Water Demand						
Municipal Demand	1,653	2,948	4,399	5,865	7,541	12,568
Total Projected Water Demand	***1,653***	***2,948***	***4,399***	***5,865***	***7,541***	***12,568***
Currently Available Water Supplies						
Trinity Aquifer	88	88	88	88	88	88
Woodbine Aquifer	124	124	124	124	124	124
North Texas Municipal Water District (Collin-Grayson Municipal Alliance)	1,408	1,668	1,668	1,668	1,668	1,668
Total Current Supplies	***1,620***	***1,880***	***1,880***	***1,880***	***1,880***	***1,880***
Need (Demand - Current Supply)	***33***	***1,068***	***2,519***	***3,985***	***5,661***	***10,688***
Water Management Strategies						
Water Conservation	33	165	298	448	640	1,169
Expand Collin-Grayson Municipal Alliance, Additional Water from NTMWD	0	903	2,221	3,537	5,021	9,519
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***33***	***1,068***	***2,519***	***3,985***	***5,661***	***10,688***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-7
Annetta

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,579**	**1,972**	**2,289**	**2,564**	**2,856**	**3,176**
Projected Water Demand						
Municipal Demand	218	265	305	339	374	416
Total Projected Water Demand	***218***	***265***	***305***	***339***	***374***	***416***
Currently Available Water Supplies						
Trinity Aquifer	240	240	240	240	240	240
Total Current Supplies	***240***	***240***	***240***	***240***	***240***	***240***
Need (Demand - Current Supply)	***0***	***25***	***65***	***99***	***134***	***176***
Water Management Strategies						
Water Conservation	3	11	16	19	23	27
Weatherford (Tarrant Regional WD)	0	14	49	80	111	149
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***25***	***65***	***99***	***134***	***176***
Reserve (Shortage)	**25**	**0**	**0**	**0**	**0**	**0**

Table C-8
Annetta South

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**708**	**836**	**939**	**1,028**	**1,123**	**1,227**
Projected Water Demand						
Municipal Demand	91	105	116	124	135	147
Total Projected Water Demand	***91***	***105***	***116***	***124***	***135***	***147***
Currently Available Water Supplies						
Trinity Aquifer	100	100	100	100	100	100
Total Current Supplies	***100***	***100***	***100***	***100***	***100***	***100***
Need (Demand - Current Supply)	***0***	***5***	***16***	***24***	***35***	***47***
Water Management Strategies						
Water Conservation	1	4	6	8	9	10
Weatherford (Tarrant Regional WD)	0	1	10	16	26	37
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***5***	***16***	***24***	***35***	***47***
Reserve (Shortage)	**10**	**0**	**0**	**0**	**0**	**0**

Table C-9
Argyle

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,750**	**8,935**	**12,983**	**14,550**	**16,282**	**18,000**
Projected Water Demand						
Municipal Demand	1,227	2,902	4,217	4,710	5,271	5,827
Total Projected Water Demand	***1,227***	***2,902***	***4,217***	***4,710***	***5,271***	***5,827***
Currently Available Water Supplies						
Argyle WSC (UTRWD and groundwater)	1,209	1,343	1,394	1,291	1,222	1,210
Total Current Supplies	***1,209***	***1,343***	***1,394***	***1,291***	***1,222***	***1,210***
Need (Demand - Current Supply)	***18***	***1,559***	***2,823***	***3,419***	***4,049***	***4,617***
Water Management Strategies						
Water Conservation	34	135	239	307	387	477
Additional Water from Argyle WSC		1,424	2,631	3,207	3,804	4,330
Total Water Management Strategies	***34***	***1,559***	***2,870***	***3,514***	***4,191***	***4,807***
Reserve (Shortage)	**16**	**0**	**47**	**95**	**142**	**190**

Table C-10
Argyle Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside Argyle	5,965	6,012	6,012	6,012	6,012	6,012
In Argyle	3,750	8,935	12,983	14,550	16,282	18,000
Total Population Served	**9,715**	**14,947**	**18,995**	**20,562**	**22,294**	**24,012**
Projected Water Demand						
Outside Argyle	1,263	1,259	1,239	1,219	1,212	1,212
In Argyle	1,227	2,902	4,217	4,710	5,271	5,827
Total Projected Demand	***2,490***	***4,161***	***5,456***	***5,929***	***6,483***	***7,039***
Currently Available Water Supplies						
Groundwater	841	841	841	841	841	841
Upper Trinity Regional Water District	1,779	1,251	1,179	1,018	911	882
Total Current Supplies	***2,620***	***2,092***	***2,020***	***1,859***	***1,752***	***1,723***
Need (Demand - Current Supply)	***0***	***2,069***	***3,436***	***4,070***	***4,731***	***5,316***
Water Management Strategies						
Water Conservation	48	173	289	391	482	582
Additional Water from UTRWD	0	2,070	3,388	3,986	4,623	5,175
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***48***	***2,243***	***3,677***	***4,377***	***5,105***	***5,757***
Reserve (Shortage)	**178**	**174**	**241**	**307**	**374**	**441**

Table C-11
Arlington

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**380,628**	**425,000**	**450,000**	**472,065**	**472,065**	**472,065**
Projected Water Demand						
Municipal Demand	77,597	85,215	89,219	92,537	92,008	92,008
Manufacturing and Customer Demand	2,589	9,140	9,962	10,837	11,750	12,719
Total Projected Demand	***80,186***	***94,355***	***99,181***	***103,374***	***103,758***	***104,727***
Currently Available Water Supplies						
Lake Arlington (TRWD)	9,850	9,700	9,550	9,400	9,250	9,100
Tarrant Regional Water District	68,006	77,114	69,406	62,993	55,473	48,949
Total Current Supplies	***77,856***	***86,814***	***78,956***	***72,393***	***64,723***	***58,049***
Need (Demand - Current Supply)	***2,330***	***7,541***	***20,225***	***30,981***	***39,035***	***46,678***
Water Management Strategies						
Water Conservation	2,123	4,631	6,309	7,503	8,306	9,121
Fort Worth Direct Reuse	207	602	602	602	602	602
Additional Water from TRWD		2,308	13,314	22,876	30,127	36,955
Expand Treatment Plant	0	0	0	0	0	0
Total Water Management Strategies	***2,330***	***7,541***	***20,225***	***30,981***	***39,035***	***46,678***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: Customer demand includes part of Tarrant County Manufacturing and planned sales to Bethesda WSC, Grand Prairie, and Pantego. See Appendix H for details on demands.

Table C-12
Athens (Total of Region C and Region I)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**13,588**	**16,343**	**19,657**	**23,643**	**28,438**	**34,204**
Projected Water Demand						
Municipal Demand	2,770	3,276	3,875	4,555	5,447	6,552
Henderson County Manufacturing	99	106	120	136	155	176
Total Projected Demand	***2,869***	***3,382***	***3,995***	***4,691***	***5,602***	***6,728***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	685	685	685	685	685	685
Athens Municipal Water Authority	1,626	1,762	1,891	2,005	2,122	2,229
Total Current Supplies	***2,311***	***2,447***	***2,576***	***2,690***	***2,807***	***2,914***
Need (Demand - Current Supply)	***558***	***935***	***1,419***	***2,001***	***2,795***	***3,814***
Water Management Strategies						
Water Conservation	46	209	344	452	589	761
Additional Water from Athens MWA	512	726	1,075	1,549	2,206	3,053
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***558***	***935***	***1,419***	***2,001***	***2,795***	***3,814***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-13
Aubrey

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,830**	**5,375**	**8,755**	**11,767**	**15,814**	**21,252**
Projected Water Demand						
Municipal Demand	396	855	1,373	1,819	2,445	3,285
Total Projected Demand	***396***	***855***	***1,373***	***1,819***	***2,445***	***3,285***
Currently Available Water Supplies						
Trinity Aquifer	436	436	436	436	436	436
Upper Trinity Regional Water District	102	202	270	299	339	413
Total Current Supplies	***538***	***638***	***706***	***735***	***775***	***849***
Need (Demand - Current Supply)	***0***	***217***	***667***	***1,084***	***1,670***	***2,436***
Water Management Strategies						
Water Conservation	8	55	68	97	139	198
Additional Water from UTRWD	0	307	773	1,190	1,763	2,499
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***362***	***841***	***1,287***	***1,902***	***2,697***
Reserve (Shortage)	**150**	**145**	**174**	**203**	**232**	**261**

Table C-14
Aurora

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,500**	**1,800**	**2,000**	**2,149**	**2,507**	**2,905**
Projected Water Demand						
Municipal Demand	187	218	237	253	292	338
Total Projected Demand	***187***	***218***	***237***	***253***	***292***	***338***
Currently Available Water Supplies						
Trinity Aquifer	252	252	252	252	252	252
Total Current Supplies	***252***	***252***	***252***	***252***	***252***	***252***
Need (Demand - Current Supply)	***0***	***0***	***0***	***1***	***40***	***86***
Water Management Strategies						
Water Conservation	3	9	13	15	18	22
Rhome (from Walnut Ck. SUD and TRWD)	0	50	50	50	50	86
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***59***	***63***	***65***	***68***	***108***
Reserve (Shortage)	**68**	**93**	**78**	**64**	**28**	**22**

Table C-15
Azle

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**12,108**	**16,795**	**23,473**	**31,060**	**38,682**	**45,362**
Projected Water Demand						
Municipal Demand	1,953	2,633	3,602	4,697	5,849	6,860
Total Projected Demand	***1,953***	***2,633***	***3,602***	***4,697***	***5,849***	***6,860***
Currently Available Water Supplies						
Tarrant Regional Water District (limited by treatment plant capacity)	1,837	1,837	1,837	1,837	1,837	1,837
Total Current Supplies	***1,837***	***1,837***	***1,837***	***1,837***	***1,837***	***1,837***
Need (Demand - Current Supply)	***116***	***796***	***1,765***	***2,860***	***4,012***	***5,023***
Water Management Strategies						
Water Conservation	116	105	174	246	326	405
3 MGD WTP Expansion (TRWD)	0	691	1,591	1,680	1,680	1,680
3 MGD WTP Expansion (TRWD)	0	0	0	934	1,680	1,680
3 MGD WTP Expansion (TRWD)	0	0	0	0	326	1,258
Total Water Management Strategies	***116***	***796***	***1,765***	***2,860***	***4,012***	***5,023***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-16
Balch Springs

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**21,083**	**22,564**	**23,849**	**24,963**	**25,930**	**26,768**
Projected Water Demand						
Municipal Demand	2,621	2,730	2,805	2,852	2,934	3,028
Total Projected Demand	***2,621***	***2,730***	***2,805***	***2,852***	***2,934***	***3,028***
Currently Available Water Supplies						
Dallas County WCID #6 (DWU)	2,410	2,050	2,012	1,920	1,823	1,654
Total Current Supplies	***2,410***	***2,050***	***2,012***	***1,920***	***1,823***	***1,654***
Need (Demand - Current Supply)	***211***	***680***	***793***	***932***	***1,111***	***1,374***
Water Management Strategies						
Water Conservation	28	95	132	149	164	180
Additional Dallas County WCID #6 (DWU)	183	585	661	783	947	1,194
Total Water Management Strategies	***211***	***680***	***793***	***932***	***1,111***	***1,374***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-17
Bardwell

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**838**	**1,075**	**1,308**	**1,546**	**1,813**	**2,107**
Projected Water Demand						
Municipal Demand	103	130	155	182	213	248
Total Projected Demand	***103***	***130***	***155***	***182***	***213***	***248***
Currently Available Water Supplies						
Woodbine Aquifer and Desalination	113	113	113	113	113	113
Total Current Supplies	***113***	***113***	***113***	***113***	***113***	***113***
Need (Demand - Current Supply)	***0***	***17***	***42***	***69***	***100***	***135***
Water Management Strategies						
Water Conservation	2	6	10	12	15	18
Ennis (TRWD through TRA)	0	11	32	57	85	117
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***17***	***42***	***69***	***100***	***135***
Reserve (Shortage)	**12**	**0**	**0**	**0**	**0**	**0**

Table C-18
Bartonville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	1,500	4,500	5,000	5,000	5,000	5,000
Projected Water Demand						
Municipal Demand	282	943	1,042	1,042	1,042	1,042
Total Projected Water Demand	***282***	***943***	***1,042***	***1,042***	***1,042***	***1,042***
Currently Available Water Supplies						
Bartonville WSC (UTRWD and groundwater)	277	377	301	249	213	196
Total Current Supplies	***277***	***377***	***301***	***249***	***213***	***196***
Need (Demand - Current Supply)	***5***	***566***	***741***	***793***	***829***	***846***
Water Management Strategies						
Water Conservation	9	54	71	80	88	97
Additional Water from Bartonville WSC	0	512	676	725	760	774
Total Water Management Strategies	***9***	***566***	***747***	***805***	***848***	***871***
Reserve (Shortage)	**4**	**0**	**6**	**12**	**19**	**25**

Table C-19
Bartonville Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside Cities	1,400	1,604	1,786	1,948	2,094	2,224
In Bartonville	1,500	4,500	5,000	5,000	5,000	5,000
In Copper Canyon	1,300	1,600	1,900	2,200	2,500	2,800
In Double Oak	3,000	3,000	3,000	3,000	3,000	3,000
Total Population Served	**7,200**	**10,704**	**11,686**	**12,148**	**12,594**	**13,024**
Projected Water Demand						
Outside Cities	307	347	380	410	439	466
In Bartonville	282	943	1,042	1,042	1,042	1,042
In Copper Canyon	357	432	507	582	661	740
In Double Oak	716	706	699	696	692	692
Total Projected Demand	***1,662***	***2,428***	***2,628***	***2,730***	***2,834***	***2,940***
Currently Available Water Supplies						
Groundwater	449	449	449	449	449	449
Upper Trinity Regional Water District	1,170	708	540	447	381	355
Total Current Supplies	***1,619***	***1,157***	***989***	***896***	***830***	***804***
Need (Demand - Current Supply)	***43***	***1,271***	***1,639***	***1,834***	***2,004***	***2,136***
Water Management Strategies						
Water Conservation	43	118	159	187	214	256
Additional Water from UTRWD	0	1,153	1,525	1,736	1,925	2,060
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***43***	***1,271***	***1,684***	***1,923***	***2,139***	***2,316***
Reserve (Shortage)	**0**	**0**	**45**	**89**	**135**	**180**

Table C-20
Bedford

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**50,001**	**52,395**	**54,407**	**56,098**	**57,519**	**58,713**
Projected Water Demand						
Municipal Demand	10,138	10,447	10,665	10,808	11,017	11,246
Total Projected Demand	***10,138***	***10,447***	***10,665***	***10,808***	***11,017***	***11,246***
Currently Available Water Supplies						
Trinity Aquifer	1,109	1,109	1,109	1,109	1,109	1,109
Trinity River Authority (TRWD)	8,755	8,567	7,450	6,543	5,853	5,222
Total Current Supplies	***9,864***	***9,676***	***8,559***	***7,652***	***6,962***	***6,331***
Need (Demand - Current Supply)	***274***	***771***	***2,106***	***3,156***	***4,055***	***4,915***
Water Management Strategies						
Water Conservation	274	529	700	807	915	1,028
Additional Water from TRA (TRWD)	0	242	1,406	2,349	3,140	3,887
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***274***	***771***	***2,106***	***3,156***	***4,055***	***4,915***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-21
Bells

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,800**	**2,300**	**2,750**	**3,250**	**3,700**	**4,000**
Projected Water Demand						
Municipal Demand	185	271	348	404	456	493
Total Projected Demand	***185***	***271***	***348***	***404***	***456***	***493***
Currently Available Water Supplies						
Trinity Aquifer	161	161	161	161	161	161
Woodbine Aquifer	43	43	43	43	43	43
Total Current Supplies	***204***	***204***	***204***	***204***	***204***	***204***
Need (Demand - Current Supply)	***0***	***67***	***144***	***200***	***252***	***289***
Water Management Strategies						
Water Conservation	4	13	20	25	30	34
Grayson County Water Supply Project (Sherman)	0	80	150	210	260	300
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***93***	***170***	***235***	***290***	***334***
Reserve (Shortage)	**23**	**26**	**26**	**35**	**38**	**45**

Table C-22
Benbrook

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**24,000**	**27,000**	**30,000**	**36,000**	**43,000**	**51,000**
Projected Water Demand						
Municipal Demand	5,592	6,140	6,721	7,984	9,489	11,254
Total Projected Demand	***5,592***	***6,140***	***6,721***	***7,984***	***9,489***	***11,254***
Currently Available Water Supplies						
Trinity Aquifer	1,183	1,183	1,183	1,183	1,183	1,183
Tarrant Regional Water District (limited by treatment plant capacity)	4,176	5,055	5,055	5,055	5,055	5,055
Total Current Supplies	***5,359***	***6,238***	***6,238***	***6,238***	***6,238***	***6,238***
Need (Demand - Current Supply)	***233***	***0***	***483***	***1,746***	***3,251***	***5,016***
Water Management Strategies						
Water Conservation	233	422	548	725	945	1,218
3 MGD Plant Expansion (TRWD)		663	1,118	1,682	1,682	1,682
3 MGD Plant Expansion (TRWD)				522	1,682	1,682
3 MGD Plant Expansion (TRWD)					125	1,617
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***233***	***1,085***	***1,666***	***2,929***	***4,434***	***6,199***
Reserve (Shortage)	**0**	**1,183**	**1,183**	**1,183**	**1,183**	**1,183**

Table C-23
Bethel-Ash WSC (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**2,025**	**2,474**	**2,917**	**3,371**	**3,925**	**4,625**
Projected Water Demand						
Municipal Demand	163	194	222	253	290	342
Total Projected Region C Demand	***163***	***194***	***222***	***253***	***290***	***342***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	480	480	480	480	480	480
Total Current Supplies	***480***	***480***	***480***	***480***	***480***	***480***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	4	13	18	22	27	33
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***13***	***18***	***22***	***27***	***33***
Reserve (Shortage)	**321**	**299**	**276**	**249**	**217**	**171**

Table C-24
Bethesda Water Supply Corporation (Regions C and G)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**29,620**	**37,309**	**45,332**	**53,999**	**64,640**	**77,546**
Projected Water Demand						
Municipal Demand	4,281	5,265	6,297	7,440	8,833	10,597
Total Projected Water Demand	***4,281***	***5,265***	***6,297***	***7,440***	***8,833***	***10,597***
Currently Available Water Supplies						
Trinity Aquifer (Region C)	405	405	405	405	405	405
Trinity Aquifer (Region G)	2,035	2,035	2,035	2,035	1,858	1,858
Fort Worth (TRWD)	2,690	2,690	2,690	2,690	2,690	2,690
Total Current Supplies	***5,130***	***5,130***	***5,130***	***5,130***	***4,953***	***4,953***
Need (Demand - Current Supply)	***0***	***135***	***1,167***	***2,310***	***3,880***	***5,644***
Water Management Strategies						
Water Conservation	30	95	120	150	186	231
Additional Water from Fort Worth with Additional Pipeline	0	288	976	1,738	2,667	3,843
Water from Arlington (TRWD)	0	1,489	1,833	2,214	2,678	3,266
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***30***	***1,872***	***2,929***	***4,102***	***5,531***	***7,340***
Reserve (Shortage)	**879**	**1,737**	**1,762**	**1,792**	**1,651**	**1,696**

Table C-25
Blackland WSC (Regions C & D)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,316**	**5,831**	**7,150**	**8,578**	**10,284**	**12,302**
Projected Water Demand						
Municipal Demand	483	699	842	999	1,197	1,433
Total Projected Water Demand	***483***	***699***	***842***	***999***	***1,197***	***1,433***
Currently Available Water Supplies						
North Texas Municipal Water District	476	569	595	634	687	765
Total Current Supplies	***476***	***569***	***595***	***634***	***687***	***765***
Need (Demand - Current Supply)	***7***	***130***	***247***	***365***	***510***	***668***
Water Management Strategies						
Water Conservation	7	28	43	55	69	87
Direct Connection and Additional Water from NTMWD	0	102	204	310	441	581
Total Water Management Strategies	***7***	***130***	***247***	***365***	***510***	***668***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-26
Blooming Grove

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**897**	**897**	**897**	**897**	**897**	**897**
Projected Water Demand						
Municipal Demand	161	157	155	152	150	150
Total Projected Water Demand	***161***	***157***	***155***	***152***	***150***	***150***
Currently Available Water Supplies						
Corsicana	161	157	146	138	131	124
Total Current Supplies	***161***	***157***	***146***	***138***	***131***	***124***
Need (Demand - Current Supply)	***0***	***0***	***9***	***14***	***19***	***26***
Water Management Strategies						
Water Conservation	2	5	6	11	12	13
Additional Water from Corsicana	0	0	3	3	7	13
Trinity Aquifer (New Well)	0	160	160	160	160	160
Total Water Management Strategies	***2***	***165***	***169***	***174***	***179***	***186***
Reserve (Shortage)	**2**	**165**	**160**	**160**	**160**	**160**

Table C-27
Blue Mound

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**2,500**	**2,500**	**2,500**	**2,500**	**2,500**	**2,500**
Projected Water Demand						
Municipal Demand	297	300	294	286	283	283
Total Projected Water Demand	***297***	***300***	***294***	***286***	***283***	***283***
Currently Available Water Supplies						
Trinity Aquifer	327	327	327	327	327	327
Total Current Supplies	***327***	***327***	***327***	***327***	***327***	***327***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	4	12	16	17	18	19
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***12***	***16***	***17***	***18***	***19***
Reserve (Shortage)	**34**	**39**	**49**	**58**	**62**	**63**

Table C-28
Blue Ridge

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**2,000**	**4,000**	**7,000**	**11,000**	**16,000**	**18,000**
Projected Water Demand						
Municipal Demand	305	627	1,090	1,700	2,473	2,782
Total Projected Water Demand	***305***	***627***	***1,090***	***1,700***	***2,473***	***2,782***
Currently Available Water Supplies						
Woodbine Aquifer	328	328	328	328	328	328
Total Current Supplies	***328***	***328***	***328***	***328***	***328***	***328***
Need (Demand - Current Supply)	***0***	***299***	***762***	***1,372***	***2,145***	***2,454***
Water Management Strategies						
Water Conservation	7	28	56	93	144	171
Direct Connection and Water from NTMWD	0	337	837	1,476	2,198	2,480
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***7***	***365***	***893***	***1,569***	***2,342***	***2,651***
Reserve (Shortage)	**30**	**66**	**131**	**197**	**197**	**197**

Table C-29
Bolivar Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**10,386**	**12,465**	**21,806**	**44,726**	**70,848**	**95,836**
Projected Water Demand						
Bolivar WSC Municipal Demand	1,279	1,703	3,371	6,863	10,872	14,707
Sanger (Net of Groundwater)	759	1,571	2,392	2,933	3,328	3,490
Total Projected Demand	***2,038***	***3,274***	***5,763***	***9,796***	***14,200***	***18,197***
Currently Available Water Supplies						
Groundwater	1,548	1,548	1,548	1,548	1,548	1,548
Upper Trinity Regional Water District	794	720	1,120	1,660	2,023	2,328
Total Current Supplies	***2,342***	***2,268***	***2,668***	***3,208***	***3,571***	***3,876***
Need (Demand - Current Supply)	***0***	***1,006***	***3,095***	***6,588***	***10,629***	***14,321***
Water Management Strategies						
Water Conservation	20	207	396	688	1,031	1,371
Additional Water from UTRWD		1,084	3,098	6,457	10,310	13,819
Cooke County WSP		18	83	104	127	149
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***20***	***1,309***	***3,577***	***7,249***	***11,468***	***15,339***
Reserve (Shortage)	**324**	**303**	**482**	**661**	**839**	**1,018**

Note: 2010 supply from UTRWD is for Sanger only. Bolivar WSC does not currently get other supplies from UTRWD, but will by 2020.

Table C-30
Bonham

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**11,516**	**12,603**	**16,000**	**22,000**	**30,000**	**37,000**
Projected Water Demand						
Municipal Demand	2,348	2,527	3,172	4,337	5,881	7,253
Fannin County - Manufacturing	73	82	90	98	105	114
Total Projected Water Demand	***2,421***	***2,609***	***3,262***	***4,435***	***5,986***	***7,367***
Currently Available Water Supplies						
Lake Bonham	2,405	2,139	2,332	2,853	3,468	3,477
Total Current Supplies	***2,405***	***2,139***	***2,332***	***2,853***	***3,468***	***3,477***
Need (Demand - Current Supply)	***16***	***470***	***930***	***1,582***	***2,518***	***3,890***
Water Management Strategies						
Water Conservation	16	103	176	282	431	594
Fannin County Water Supply Project	0	367	754	1,300	2,087	3,296
Total Water Management Strategies	***16***	***470***	***930***	***1,582***	***2,518***	***3,890***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-31
Boyd

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,500**	**2,000**	**2,500**	**3,000**	**3,500**	**3,500**
Projected Water Demand						
Municipal Demand	215	278	339	397	459	459
Total Projected Demand	***215***	***278***	***339***	***397***	***459***	***459***
Currently Available Water Supplies						
Trinity Aquifer	150	150	150	150	150	150
Walnut Creek SUD (TRWD)	62	117	147	167	183	159
Total Current Supplies	***212***	***267***	***297***	***317***	***333***	***309***
Need (Demand - Current Supply)	***3***	***11***	***42***	***80***	***126***	***150***
Water Management Strategies						
Water Conservation	3	10	16	20	25	27
Additional Water from Walnut Ck. SUD		1	26	60	101	123
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***11***	***42***	***80***	***126***	***150***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-32
Brandon-Irene Water Supply Corporation (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**300**	**327**	**355**	**385**	**419**	**460**
Projected Water Demand						
Municipal Demand	37	39	41	43	46	51
Total Projected Region C Demand	***37***	***39***	***41***	***43***	***46***	***51***
Currently Available Water Supplies						
Aquilla WSD (Lake Aquilla, Region G)	37	39	41	43	46	51
Total Current Supplies	***37***	***39***	***41***	***43***	***46***	***51***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	0	2	2	3	3	3
Total Water Management Strategies	***0***	***2***	***2***	***3***	***3***	***3***
Reserve (Shortage)	**0**	**2**	**2**	**3**	**3**	**3**

Table C-33
Bridgeport

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,900**	**8,352**	**12,001**	**14,296**	**16,657**	**19,936**
Projected Water Demand						
Municipal Demand	1,361	1,899	2,702	3,187	3,713	4,444
Total Projected Demand	***1,361***	***1,899***	***2,702***	***3,187***	***3,713***	***4,444***
Currently Available Water Supplies						
Tarrant Regional Water District (limited by treatment plant capacity)	1,337	1,700	1,700	1,700	1,700	1,700
Total Current Supplies	***1,337***	***1,700***	***1,700***	***1,700***	***1,700***	***1,700***
Need (Demand - Current Supply)	***24***	***199***	***1,002***	***1,487***	***2,013***	***2,744***
Water Management Strategies						
Water Conservation	24	107	188	252	324	425
Water Plant Expansions and more TRWD	0	92	814	1,235	1,689	2,319
Total Water Management Strategies	***24***	***199***	***1,002***	***1,487***	***2,013***	***2,744***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-34
Bryson

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**542**	**559**	**570**	**570**	**570**	**570**
Projected Water Demand						
Municipal Demand	96	97	96	94	94	94
Total Projected Demand	***96***	***97***	***96***	***94***	***94***	***94***
Currently Available Water Supplies						
Graham (through Fort Belknap WSC)	93	91	88	86	85	85
Total Current Supplies	***93***	***91***	***88***	***86***	***85***	***85***
Need (Demand - Current Supply)	***3***	***6***	***8***	***8***	***9***	***9***
Water Management Strategies						
Water Conservation	3	6	8	8	9	9
Total Water Management Strategies	***3***	***6***	***8***	***8***	***9***	***9***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-35
Buena Vista-Bethel Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**3,858**	**5,049**	**6,447**	**8,035**	**9,771**	**11,661**
Projected Water Demand						
Municipal Demand	1,387	1,810	2,311	2,880	3,502	4,180
Total Projected Demand	***1,387***	***1,810***	***2,311***	***2,880***	***3,502***	***4,180***
Currently Available Water Supplies						
Trinity Aquifer	344	344	344	344	344	344
Waxahachie (TRWD)	560	560	560	560	560	560
Total Current Supplies	***904***	***904***	***904***	***904***	***904***	***904***
Need (Demand - Current Supply)	***483***	***906***	***1,407***	***1,976***	***2,598***	***3,276***
Water Management Strategies						
Water Conservation	117	367	494	640	807	998
Overdraft Trinity Aquifer	366	0	0	0	0	0
Additional Water from Waxahachie and Additional Pipeline		539	913	1,336	1,791	2,278
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***483***	***906***	***1,407***	***1,976***	***2,598***	***3,276***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-36
Burleson (Regions C and G)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**32,091**	**48,255**	**60,336**	**61,782**	**63,517**	**65,567**
Projected Water Demand						
Municipal Demand	5,248	7,676	9,462	9,550	9,749	10,062
Total Projected Water Demand	***5,248***	***7,676***	***9,462***	***9,550***	***9,749***	***10,062***
Currently Available Water Supplies						
Fort Worth (TRWD)	5,235	7,042	7,377	6,443	5,759	5,183
Total Current Supplies	***5,235***	***7,042***	***7,377***	***6,443***	***5,759***	***5,183***
Need (Demand - Current Supply)	***13***	***634***	***2,085***	***3,107***	***3,990***	***4,879***
Water Management Strategies						
Water Conservation	13	34	50	64	82	104
Additional Water from Fort Worth	0	600	2,035	3,043	3,908	4,775
Total Water Management Strategies	***13***	***634***	***2,085***	***3,107***	***3,990***	***4,879***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-37
Caddo Basin Special Utility District (Regions C and D)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,386**	**11,653**	**14,690**	**18,807**	**26,258**	**37,161**
Projected Water Demand						
Municipal Demand	1,210	1,501	1,893	2,423	3,382	4,787
Total Projected Water Demand	***1,210***	***1,501***	***1,893***	***2,423***	***3,382***	***4,787***
Currently Available Water Supplies						
North Texas Municipal Water District	1,199	1,222	1,338	1,539	1,942	2,555
Total Current Supplies	***1,199***	***1,222***	***1,338***	***1,539***	***1,942***	***2,555***
Need (Demand - Current Supply)	***11***	***279***	***555***	***884***	***1,440***	***2,232***
Water Management Strategies						
Water Conservation	11	39	55	70	87	106
Additional Water from NTMWD	0	240	500	814	1,353	2,126
Total Water Management Strategies	***11***	***279***	***555***	***884***	***1,440***	***2,232***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-38
Carrollton

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**121,000**	**124,000**	**128,500**	**131,320**	**133,450**	**134,800**
Projected Water Demand						
Municipal Demand	25,887	26,113	26,772	27,065	27,356	27,632
Total Projected Demand	***25,887***	***26,113***	***26,772***	***27,065***	***27,356***	***27,632***
Currently Available Water Supplies						
Trinity Aquifer	10	10	10	10	10	10
Dallas Water Utilities	23,806	19,612	19,203	18,225	16,995	15,094
Total Current Supplies	***23,816***	***19,622***	***19,213***	***18,235***	***17,005***	***15,104***
Need (Demand - Current Supply)	***2,071***	***6,491***	***7,559***	***8,830***	***10,351***	***12,528***
Water Management Strategies						
Water Conservation	1,048	1,732	2,127	2,394	2,652	2,911
Additional Water from DWU	1,033	4,769	5,442	6,446	7,709	9,627
Total Water Management Strategies	***2,081***	***6,501***	***7,569***	***8,840***	***10,361***	***12,538***
Reserve (Shortage)	**10**	**10**	**10**	**10**	**10**	**10**

Table C-39
Cash Special Utility District (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**638**	**860**	**1,053**	**1,260**	**1,505**	**1,792**
Projected Water Demand						
Municipal Demand	82	111	136	162	194	231
Total Projected Region C Demand	***82***	***111***	***136***	***162***	***194***	***231***
Currently Available Water Supplies						
North Texas Municipal Water District	644	651	714	855	1,029	957
Total Current Supplies	***644***	***651***	***714***	***855***	***1,029***	***957***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	5	8	10	12	15
Additional Water from NTMWD	2	149	296	491	763	835
Total Water Management Strategies	***4***	***154***	***304***	***501***	***775***	***850***
Available to Send to Region D	**566**	**694**	**882**	**1,194**	**1,610**	**1,576**
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: Cash SUD is also supplied from the Sabine River Authority (Lake Tawakoni) to meet part of Region D demands.

Table C-40
Cedar Hill

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**46,255**	**66,728**	**78,085**	**81,622**	**81,622**	**81,622**
Projected Water Demand						
Municipal Demand	10,104	14,351	16,706	17,280	17,280	17,280
Total Projected Demand	***10,104***	***14,351***	***16,706***	***17,280***	***17,280***	***17,280***
Currently Available Water Supplies						
Trinity Aquifer	275	275	275	275	275	275
Dallas Water Utilities	9,027	10,561	11,776	11,441	10,554	9,279
Total Current Supplies	***9,302***	***10,836***	***12,051***	***11,716***	***10,829***	***9,554***
Need (Demand - Current Supply)	***802***	***3,515***	***4,655***	***5,564***	***6,451***	***7,726***
Water Management Strategies						
Water Conservation	380	997	1,362	1,562	1,706	1,850
Additional Water from DWU	422	2,518	3,293	4,002	4,745	5,876
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***802***	***3,515***	***4,655***	***5,564***	***6,451***	***7,726***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-41
Celina

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,000**	**25,414**	**53,798**	**95,267**	**145,702**	**168,118**
Projected Water Demand						
Municipal Demand	1,238	6,234	13,076	23,050	35,253	40,677
Total Projected Water Demand	***1,238***	***6,234***	***13,076***	***23,050***	***35,253***	***40,677***
Currently Available Water Supplies						
Trinity Aquifer	317	317	317	317	317	317
Woodbine Aquifer	236	236	236	236	236	236
Upper Trinity Regional Water District	723	1,517	2,338	2,800	2,800	2,800
Total Current Supplies	***1,276***	***2,070***	***2,891***	***3,353***	***3,353***	***3,353***
Need (Demand - Current Supply)	***0***	***4,164***	***10,185***	***19,697***	***31,900***	***37,324***
Water Management Strategies						
Water Conservation	37	317	791	1,593	2,732	3,497
Additional Water from UTRWD	0	2,403	6,500	13,259	24,373	29,082
Connection to NTMWD and Supply	0	1,500	3,000	5,000	5,000	5,000
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***37***	***4,220***	***10,291***	***19,852***	***32,105***	***37,579***
Reserve (Shortage)	**75**	**56**	**106**	**155**	**205**	**255**

Table C-42
Chatfield Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,200**	**6,000**	**7,800**	**9,799**	**11,718**	**14,075**
Projected Water Demand						
Municipal Demand	428	726	935	1,153	1,378	1,655
Total Projected Water Demand	***428***	***726***	***935***	***1,153***	***1,378***	***1,655***
Currently Available Water Supplies						
Corsicana	428	726	878	1,047	1,201	1,372
Total Current Supplies	***428***	***726***	***878***	***1,047***	***1,201***	***1,372***
Need (Demand - Current Supply)	***0***	***0***	***57***	***106***	***177***	***283***
Water Management Strategies						
Water Conservation	6	30	49	65	83	105
Additional Water from Corsicana	0	0	8	41	94	178
Total Water Management Strategies	***6***	***30***	***57***	***106***	***177***	***283***
Reserve (Shortage)	**6**	**30**	**0**	**0**	**0**	**0**

Table C-43
Chico

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,300**	**1,500**	**1,800**	**2,200**	**2,700**	**3,300**
Projected Water Demand						
Municipal Demand	208	235	276	333	405	495
Total Projected Demand	***208***	***235***	***276***	***333***	***405***	***495***
Currently Available Water Supplies						
Trinity Aquifer	124	124	124	124	124	124
West Wise SUD (TRWD)	81	102	111	111	111	111
Total Current Supplies	***205***	***226***	***235***	***235***	***235***	***235***
Need (Demand - Current Supply)	***3***	***9***	***41***	***98***	***170***	***260***
Water Management Strategies						
Water Conservation	3	9	14	18	23	30
Additional Water from West Wise SUD			27	80	147	230
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***9***	***41***	***98***	***170***	***260***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-44
Cockrell Hill

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,782**	**4,947**	**5,028**	**5,067**	**5,086**	**5,095**
Projected Water Demand						
Municipal Demand	653	687	681	670	667	668
Total Projected Demand	***653***	***687***	***681***	***670***	***667***	***668***
Currently Available Water Supplies						
Dallas Water Utilities	600	516	488	451	414	365
Total Current Supplies	***600***	***516***	***488***	***451***	***414***	***365***
Need (Demand - Current Supply)	***53***	***171***	***193***	***219***	***253***	***303***
Water Management Strategies						
Water Conservation	6	21	28	31	33	36
Additional Water from DWU	47	150	165	188	220	267
Total Water Management Strategies	***53***	***171***	***193***	***219***	***253***	***303***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-45
College Mound Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,150**	**11,333**	**13,576**	**16,062**	**19,140**	**22,958**
Projected Water Demand						
Municipal Demand	758	1,155	1,582	1,853	2,187	2,623
Total Projected Water Demand	***758***	***1,155***	***1,582***	***1,853***	***2,187***	***2,623***
Currently Available Water Supplies						
North Texas Municipal Water District (directly and through Terrell)	745	940	1,118	1,177	1,256	1,400
Total Current Supplies	***745***	***940***	***1,118***	***1,177***	***1,256***	***1,400***
Need (Demand - Current Supply)	***13***	***215***	***464***	***676***	***931***	***1,223***
Water Management Strategies						
Water Conservation	13	55	86	108	136	172
Additional Water from NTMWD	0	160	378	568	795	1,051
Total Water Management Strategies	***13***	***215***	***464***	***676***	***931***	***1,223***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-46
Colleyville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**24,500**	**28,000**	**28,000**	**28,000**	**28,000**	**28,000**
Projected Water Demand						
Municipal Demand	8,123	9,190	9,127	9,096	9,064	9,064
Total Projected Water Demand	***8,123***	***9,190***	***9,127***	***9,096***	***9,064***	***9,064***
Currently Available Water Supplies						
Trinity Aquifer	799	799	799	799	799	799
Trinity River Authority (TRWD)	7,104	7,702	6,495	5,600	4,884	4,259
Total Current Supplies	***7,903***	***8,501***	***7,294***	***6,399***	***5,683***	***5,058***
Need (Demand - Current Supply)	***220***	***689***	***1,833***	***2,697***	***3,381***	***4,006***
Water Management Strategies						
Water Conservation	220	479	650	727	800	876
Additional Water from TRA	0	210	1,183	1,970	2,581	3,130
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***220***	***689***	***1,833***	***2,697***	***3,381***	***4,006***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-47
Collin County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,995**	**2,995**	**2,995**	**2,995**	**2,995**	**2,995**
Currently Available Water Supplies						
Direct Reuse (The Colony)	380	380	380	380	380	380
Direct Reuse (NTMWD)	1,847	1,847	1,847	1,847	1,847	1,847
Other Aquifer	21	21	21	21	21	21
Trinity Aquifer	545	545	545	545	545	545
DWU Sources	2,713	2,216	2,116	1,986	1,833	1,611
Local Supplies	408	408	408	408	408	408
Total Current Supplies	***5,914***	***5,417***	***5,317***	***5,187***	***5,034***	***4,812***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	6	99	190	238	283	328
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***99***	***190***	***238***	***283***	***328***
Reserve (Shortage)	**2,925**	**2,521**	**2,512**	**2,430**	**2,322**	**2,145**

Table C-48
Collin County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**884**	**884**	**884**	**884**	**884**	**884**
Currently Available Water Supplies						
Livestock Local Supply	1,002	1,002	1,002	1,002	1,002	1,002
Other Aquifer	118	118	118	118	118	118
Total Current Supplies	***1,120***	***1,120***	***1,120***	***1,120***	***1,120***	***1,120***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**236**	**236**	**236**	**236**	**236**	**236**

Table C-49
Collin County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**3,607**	**4,137**	**4,654**	**5,170**	**5,633**	**6,115**
Currently Available Water Supplies						
Woodbine Aquifer	327	327	327	327	327	327
North Texas Municipal Water District (through multiple suppliers)	3,280	3,101	3,059	3,076	3,047	3,090
Total Current Supplies	***3,607***	***3,428***	***3,386***	***3,403***	***3,374***	***3,417***
Need (Demand - Current Supply)	***0***	***709***	***1,268***	***1,767***	***2,259***	***2,698***
Water Management Strategies						
Water Conservation	0	6	72	108	119	130
Additional Water from NTMWD	0	703	1,196	1,659	2,140	2,568
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***709***	***1,268***	***1,767***	***2,259***	***2,698***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-50
Collin County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**341**	**341**	**341**	**341**	**341**	**341**
Currently Available Water Supplies						
Local Supplies	195	195	195	195	195	195
North Texas Municipal Water District	146	119	103	93	84	78
Total Current Supplies	***341***	***314***	***298***	***288***	***279***	***273***
Need (Demand - Current Supply)	***0***	***27***	***43***	***53***	***62***	***68***
Water Management Strategies						
Additional Water from NTMWD	0	27	43	53	62	68
Total Water Management Strategies	***0***	***27***	***43***	***53***	***62***	***68***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-51
Collin County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,408**	**5,981**	**5,600**	**5,208**	**4,801**	**4,369**
Projected Water Demand						
Municipal Demand	818	743	677	613	554	504
Total Projected Water Demand	***818***	***743***	***677***	***613***	***554***	***504***
Currently Available Water Supplies						
Trinity Aquifer	655	655	655	655	655	655
Woodbine Aquifer	505	505	505	505	505	505
North Texas Municipal Water District	403	302	239	194	159	135
Total Current Supplies	***1,563***	***1,462***	***1,399***	***1,354***	***1,319***	***1,295***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	11	36	42	41	39	37
Additional Water from NTMWD	0	33	57	71	79	80
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***11***	***69***	***99***	***112***	***118***	***117***
Reserve (Shortage)	**756**	**788**	**821**	**853**	**883**	**908**

Table C-52
Collin County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**771**	**715**	**1,000**	**1,200**	**1,600**	**2,000**
Currently Available Water Supplies						
North Texas Municipal Water District	771	0	0	0	0	0
Total Current Supplies	***771***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***715***	***1,000***	***1,200***	***1,600***	***2,000***
Water Management Strategies						
Additional Water from NTMWD	0	715	1,000	1,200	1,600	2,000
Total Water Management Strategies	***0***	***715***	***1,000***	***1,200***	***1,600***	***2,000***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-53
Collinsville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,035**	**2,835**	**3,635**	**4,435**	**5,235**	**6,035**
Projected Water Demand						
Municipal Demand	324	441	558	666	780	899
Total Projected Water Demand	***324***	***441***	***558***	***666***	***780***	***899***
Currently Available Water Supplies						
Trinity Aquifer	356	356	356	356	356	356
Total Current Supplies	***356***	***356***	***356***	***356***	***356***	***356***
Need (Demand - Current Supply)	***0***	***85***	***202***	***310***	***424***	***543***
Water Management Strategies						
Water Conservation	7	19	29	38	47	57
Grayson County Water Supply Project (Northwest WTP)	0	100	200	300	400	500
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***7***	***119***	***229***	***338***	***447***	***557***
Reserve (Shortage)	**39**	**34**	**27**	**28**	**23**	**14**

Table C-54
Combine

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,393**	**2,969**	**3,474**	**4,019**	**4,702**	**5,563**
Projected Water Demand						
Municipal Demand	282	356	405	463	537	635
Total Projected Water Demand	***282***	***356***	***405***	***463***	***537***	***635***
Currently Available Water Supplies						
Combine WSC (DWU)	260	268	291	312	334	347
Total Current Supplies	***260***	***268***	***291***	***312***	***334***	***347***
Need (Demand - Current Supply)	***22***	***88***	***114***	***151***	***203***	***288***
Water Management Strategies						
Water Conservation	4	15	23	28	34	43
Additional Combine WSC (DWU)	18	73	91	123	169	245
Total Water Management Strategies	***22***	***88***	***114***	***151***	***203***	***288***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-55
Combine Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside Combine	4,122	5,737	7,202	8,795	10,785	13,285
In Combine	2,393	2,969	3,474	4,019	4,702	5,563
Total Population Served	**6,515**	**8,706**	**10,676**	**12,814**	**15,487**	**18,848**
Projected Water Demand						
Outside Combine	462	688	855	1,035	1,268	1,562
In Combine	282	356	405	463	537	635
Total Projected Demand	***744***	***1,044***	***1,260***	***1,498***	***1,805***	***2,197***
Currently Available Water Supplies						
Dallas Water Utilities	684	785	904	1,009	1,122	1,201
Total Current Supplies	***684***	***785***	***904***	***1,009***	***1,122***	***1,201***
Need (Demand - Current Supply)	***60***	***259***	***356***	***489***	***683***	***996***
Water Management Strategies						
Water Conservation	12	45	69	88	111	143
Additional Water from DWU	48	214	287	401	572	853
Total Water Management Strategies	***60***	***259***	***356***	***489***	***683***	***996***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-56
Community Water Company (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Ellis County	1,134	1,414	1,690	1,972	2,288	2,636
Navarro County	1,041	1,301	1,626	2,032	2,541	3,176
Total Region C Population Served	**2,175**	**2,715**	**3,316**	**4,004**	**4,829**	**5,812**
Projected Water Demand						
Ellis County	116	171	201	230	264	304
Navarro County	106	157	193	237	293	366
Total Region C Projected Demand	***222***	***328***	***394***	***467***	***557***	***670***
Currently Available Water Supplies						
Ennis (TRA - Lake Bardwell)	100	119	112	101	90	80
Corsicana (TRA - Navarro Mills Lake)	106	157	181	215	255	303
Total Current Supplies	***206***	***276***	***293***	***316***	***345***	***383***
Need (Demand - Current Supply)	***16***	***52***	***101***	***151***	***212***	***287***
Water Management Strategies						
Water Conservation	3	13	21	27	34	43
Additional Water from Ennis (Ellis County Water Supply Project)	13	39	78	116	158	204
Additional Water from Corsicana	0	0	2	8	20	40
Total Water Management Strategies	***16***	***52***	***101***	***151***	***212***	***287***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-57
Community Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,536**	**3,588**	**3,642**	**3,699**	**3,767**	**3,847**
Projected Water Demand						
Municipal Demand	444	438	433	422	426	435
Total Projected Water Demand	***444***	***438***	***433***	***422***	***426***	***435***
Currently Available Water Supplies						
Tarrant Regional Water District	437	402	338	285	252	224
Total Current Supplies	***437***	***402***	***338***	***285***	***252***	***224***
Need (Demand - Current Supply)	***7***	***36***	***95***	***137***	***174***	***211***
Water Management Strategies						
Water Conservation	7	25	27	29	31	33
Additional Water from TRWD	0	11	68	108	143	178
Total Water Management Strategies	***7***	***36***	***95***	***137***	***174***	***211***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-58
Cooke County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**444**	**444**	**444**	**444**	**444**	**444**
Currently Available Water Supplies						
Trinity Aquifer	172	172	172	172	172	172
Other Aquifer	100	100	100	100	100	100
Direct Reuse	9	9	9	9	9	9
Local Supplies	23	23	23	23	23	23
Total Current Supplies	***304***	***304***	***304***	***304***	***304***	***304***
Need (Demand - Current Supply)	***140***	***140***	***140***	***140***	***140***	***140***
Water Management Strategies						
Water Conservation	0	6	11	15	18	22
Overdraft Trinity Aquifer	140	0	0	0	0	0
Direct Reuse	0	70	70	70	70	70
Cooke County Water Supply Project	0	70	70	70	70	70
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***140***	***146***	***151***	***155***	***158***	***162***
Reserve (Shortage)	**0**	**6**	**11**	**15**	**18**	**22**

Table C-59
Cooke County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,898**	**1,898**	**1,898**	**1,898**	**1,898**	**1,898**
Currently Available Water Supplies						
Trinity Aquifer	711	711	711	711	711	711
Local Supplies	1,187	1,187	1,187	1,187	1,187	1,187
Total Current Supplies	***1,898***	***1,898***	***1,898***	***1,898***	***1,898***	***1,898***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-60
Cooke County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**273**	**306**	**335**	**364**	**389**	**421**
Currently Available Water Supplies						
Trinity Aquifer	50	50	50	50	50	50
Gainesville	215	194	158	152	137	130
Total Current Supplies	***265***	***244***	***208***	***202***	***187***	***180***
Need (Demand - Current Supply)	***8***	***62***	***127***	***162***	***202***	***241***
Water Management Strategies						
Water Conservation	0	1	7	10	11	12
Cooke County Water Supply Project	8	61	60	91	128	164
Lake Muenster	0	0	60	61	63	65
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***62***	***127***	***162***	***202***	***241***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-61
Cooke County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**361**	**484**	**421**	**428**	**435**	**441**
Currently Available Water Supplies						
Trinity Aquifer	49	49	49	49	49	49
Local Supplies	237	237	237	237	237	237
Total Current Supplies	***286***	***286***	***286***	***286***	***286***	***286***
Need (Demand - Current Supply)	***75***	***198***	***135***	***142***	***149***	***155***
Water Management Strategies						
Overdraft Trinity Aquifer (existing wells)	75	0	0	0	0	0
Direct Reuse	0	99	67	71	74	77
Cooke County Water Supply Project	0	99	68	71	75	78
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***75***	***198***	***135***	***142***	***149***	***155***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-62
Cooke County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,487**	**10,181**	**10,533**	**10,590**	**10,586**	**10,586**
Projected Water Demand						
Municipal Demand	1,074	1,232	1,251	1,234	1,221	1,222
Total Projected Water Demand	***1,074***	***1,232***	***1,251***	***1,234***	***1,221***	***1,222***
Currently Available Water Supplies						
Trinity Aquifer	883	883	883	883	883	883
Woodbine Aquifer	154	154	154	154	154	154
Other Aquifer	137	137	137	137	137	137
Total Current Supplies	***1,174***	***1,174***	***1,174***	***1,174***	***1,174***	***1,174***
Need (Demand - Current Supply)	***0***	***58***	***77***	***60***	***47***	***48***
Water Management Strategies						
Water Conservation	13	47	65	70	74	78
Cooke County Water Supply Project	0	125	125	125	125	125
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***13***	***172***	***190***	***195***	***199***	***203***
Reserve (Shortage)	**113**	**114**	**113**	**135**	**152**	**155**

Table C-63
Cooke County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
None	0	0	0	0	0	0
Total Current Supplies	***0***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-64
Coppell

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**40,415**	**40,577**	**40,715**	**40,832**	**40,932**	**41,016**
Projected Water Demand						
Municipal Demand	11,544	11,500	11,447	11,434	11,417	11,440
Total Projected Demand	***11,544***	***11,500***	***11,447***	***11,434***	***11,417***	***11,440***
Currently Available Water Supplies						
Dallas Water Utilities	10,615	8,637	8,211	7,699	7,093	6,249
Total Current Supplies	***10,615***	***8,637***	***8,211***	***7,699***	***7,093***	***6,249***
Need (Demand - Current Supply)	***929***	***2,863***	***3,236***	***3,735***	***4,324***	***5,191***
Water Management Strategies						
Water Conservation	515	809	956	1,063	1,157	1,255
Additional Water from DWU	414	2,054	2,280	2,672	3,167	3,936
Total Water Management Strategies	***929***	***2,863***	***3,236***	***3,735***	***4,324***	***5,191***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-65
Copper Canyon

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,300**	**1,600**	**1,900**	**2,200**	**2,500**	**2,800**
Projected Water Demand						
Municipal Demand	357	432	507	582	661	740
Total Projected Water Demand	***357***	***432***	***507***	***582***	***661***	***740***
Currently Available Water Supplies						
Bartonville WSC (UTRWD and groundwater)	351	223	207	201	196	197
Total Current Supplies	***351***	***223***	***207***	***201***	***196***	***197***
Need (Demand - Current Supply)	***6***	***209***	***300***	***381***	***465***	***543***
Water Management Strategies						
Water Conservation	10	20	30	40	51	63
Additional Water from Bartonville WSC	0	189	281	362	435	512
Total Water Management Strategies	***10***	***209***	***311***	***402***	***486***	***575***
Reserve (Shortage)	**4**	**0**	**11**	**21**	**21**	**32**

Table C-66
Corinth

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**21,032**	**24,000**	**26,000**	**28,000**	**30,000**	**31,500**
Projected Water Demand						
Municipal Demand	4,665	5,269	5,679	6,085	6,519	6,845
Total Projected Demand	***4,665***	***5,269***	***5,679***	***6,085***	***6,519***	***6,845***
Currently Available Water Supplies						
Trinity Aquifer	280	280	280	280	280	280
Upper Trinity Regional Water District	4,204	1,886	1,379	1,147	987	909
Total Current Supplies	***4,484***	***2,166***	***1,659***	***1,427***	***1,267***	***1,189***
Need (Demand - Current Supply)	***181***	***3,103***	***4,020***	***4,658***	***5,252***	***5,656***
Water Management Strategies						
Water Conservation	211	368	474	565	659	750
Additional Water from UTRWD	0	3,015	3,826	4,373	4,873	5,186
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***211***	***3,383***	***4,300***	***4,938***	***5,532***	***5,936***
Reserve (Shortage)	**30**	**280**	**280**	**280**	**280**	**280**

Table C-67
Corsicana

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (in City)	**27,132**	**28,340**	**29,598**	**30,964**	**32,594**	**34,597**
Projected Water Demand						
Municipal Demand	6,200	6,381	6,564	6,763	7,083	7,518
Manufacturing and Customers	4,665	14,003	20,129	20,841	21,667	22,694
Total Projected Demand	***10,865***	***20,384***	***26,693***	***27,604***	***28,750***	***30,212***
Currently Available Water Supplies						
Lake Halbert/Richland-Chambers	2,242	2,242	2,242	2,242	2,242	2,242
Navarro Mills Lake	11,210	11,210	11,210	11,210	11,210	11,210
Total Current Supplies	***13,452***	***13,452***	***13,452***	***13,452***	***13,452***	***13,452***
Need (Demand - Current Supply)	***0***	***6,932***	***13,241***	***14,152***	***15,298***	***16,760***
Water Management Strategies						
Water Conservation	147	382	531	868	1,105	1,309
Pump Station from Richland-Chambers and New WTP		2,242	2,242	2,242	2,242	2,242
Raw Water for Power Plant		8,000	8,000	8,000	8,000	8,000
Raw Water for Second Power Plant			5,440	5,440	5,440	5,440
Purchase Water from TRWD	Included in Other Numbers.					
8 mgd WTP Expansion				4,484	4,484	4,484
Total Water Management Strategies	***147***	***10,624***	***16,213***	***21,034***	***21,271***	***21,475***
Reserve (Shortage)	**2,734**	**3,692**	**2,972**	**6,882**	**5,973**	**4,715**

Note: See Appendix H for details on demand.

Table C-68
Crandall

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,373**	**5,933**	**7,537**	**9,314**	**11,515**	**14,245**
Projected Water Demand						
Municipal Demand	730	1,004	1,258	1,544	1,909	2,362
Total Projected Demand	***730***	***1,004***	***1,258***	***1,544***	***1,909***	***2,362***
Currently Available Water Supplies						
North Texas Municipal Water District	715	545	474	426	385	358
Total Current Supplies	***715***	***545***	***474***	***426***	***385***	***358***
Need (Demand - Current Supply)	***15***	***459***	***784***	***1,118***	***1,524***	***2,004***
Water Management Strategies						
Water Conservation	15	72	119	160	215	286
Additional water from NTMWD	0	65	121	356	388	408
Dallas Water Utilities (thru Seagoville)	0	322	544	602	921	1,310
Total Water Management Strategies	***15***	***459***	***784***	***1,118***	***1,524***	***2,004***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-69
Cresson (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**403**	**492**	**601**	**734**	**896**	**1,093**
Projected Water Demand						
Region C Municipal Demand	56	68	83	101	123	151
Total Projected Region C Demand	***56***	***68***	***83***	***101***	***123***	***151***
Currently Available Water Supplies						
Bluebonnet Hills WSC (Trinity Aquifer)	166	166	166	166	166	166
Total Current Supplies	***166***	***166***	***166***	***166***	***166***	***166***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Region C Water Conservation	1	3	4	5	7	9
Total Water Management Strategies	***1***	***3***	***4***	***5***	***7***	***9***
Reserve (Shortage)	**111**	**101**	**87**	**70**	**50**	**24**

Table C-70
Cross Roads

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,500**	**3,800**	**3,800**	**3,800**	**3,800**	**3,800**
Projected Water Demand						
Municipal Demand	575	1,234	1,230	1,230	1,230	1,230
Total Projected Demand	***575***	***1,234***	***1,230***	***1,230***	***1,230***	***1,230***
Currently Available Water Supplies						
Mustang SUD (UTRWD & Groundwater)	532	579	498	459	426	410
Total Current Supplies	***532***	***579***	***498***	***459***	***426***	***410***
Need (Demand - Current Supply)	***43***	***655***	***732***	***771***	***804***	***820***
Water Management Strategies						
Water Conservation	19	64	76	86	97	107
Additional Water from Mustang SUD	24	591	682	736	784	815
Total Water Management Strategies	***43***	***655***	***758***	***822***	***881***	***922***
Reserve (Shortage)	**0**	**0**	**26**	**51**	**77**	**102**

Table C-71
Crowley

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**11,023**	**13,473**	**17,147**	**23,271**	**28,170**	**30,620**
Projected Water Demand						
Municipal Demand	1,667	1,977	2,478	3,310	3,976	4,322
Total Projected Water Demand	***1,667***	***1,977***	***2,478***	***3,310***	***3,976***	***4,322***
Currently Available Water Supplies						
Trinity Aquifer	429	429	429	429	429	429
Fort Worth (TRWD)	1,218	1,420	1,597	1,944	2,095	2,005
Total Current Supplies	***1,647***	***1,849***	***2,026***	***2,373***	***2,524***	***2,434***
Need (Demand - Current Supply)	***20***	***128***	***452***	***937***	***1,452***	***1,888***
Water Management Strategies						
Water Conservation	20	67	109	160	207	239
Additional Water from TRWD	0	61	343	777	1,245	1,649
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***20***	***128***	***452***	***937***	***1,452***	***1,888***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-72
Culleoka Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,534**	**11,264**	**13,682**	**16,161**	**18,754**	**21,515**
Projected Water Demand						
Municipal Demand	908	1,350	1,625	1,883	2,185	2,506
Total Projected Water Demand	***908***	***1,350***	***1,625***	***1,883***	***2,185***	***2,506***
Currently Available Water Supplies						
Princeton (NTMWD)	890	1,099	1,149	1,196	1,255	1,338
Total Current Supplies	***890***	***1,099***	***1,149***	***1,196***	***1,255***	***1,338***
Need (Demand - Current Supply)	***18***	***251***	***476***	***687***	***930***	***1,168***
Water Management Strategies						
Water Conservation	18	74	102	126	154	185
Additional Water from Princeton	0	177	374	561	776	983
Total Water Management Strategies	***18***	***251***	***476***	***687***	***930***	***1,168***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-73
Dallas

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (in City)	1,312,324	1,415,000	1,495,000	1,598,223	1,764,681	2,058,767
Projected Water Demand						
Municipal Demand	374,848	399,421	416,979	442,190	486,268	567,304
Manufacturing and Customers	231,782	289,272	315,533	344,721	376,851	426,864
Total Projected Demand	***606,630***	***688,693***	***732,512***	***786,911***	***863,119***	***994,168***
Currently Available Water Supplies						
Elm Fork System	184,801	183,733	182,665	181,597	180,529	179,459
Grapevine Lake	7,583	7,367	7,150	6,933	6,717	6,500
Lake Ray Hubbard	57,427	56,113	54,800	53,487	52,173	50,860
Lake Ray Hubbard Temporary	49,800	0	0	0	0	0
Lake Tawakoni	183,619	182,251	180,882	179,515	178,146	176,777
Lake Fork	40,581	41,949	43,318	44,685	46,054	47,423
Direct Reuse (Golf courses)	561	561	561	561	561	561
White Rock Lake (Irrigation Only)	3,500	3,200	2,900	2,600	2,300	2,000
Return Flow*	29,961	42,046	53,147	60,646	69,861	85,000
Total Current Supplies	***557,833***	***517,220***	***525,423***	***530,024***	***536,341***	***548,580***
Need (Demand - Current Supply)	***48,797***	***171,473***	***207,089***	***256,887***	***326,778***	***445,588***
Water Management Strategies						
Conservation (DWU Retail)	18,432	26,522	28,154	34,134	41,528	52,987
Conservation (Wholesale Customers)	7,211	16,032	25,739	31,242	36,956	44,627
Additional Dry Year Supply	25,000	0	0	0	0	0
Lk. Ray Hubbard Operational Efficiency**	0	153,187	154,500	155,813	157,127	158,440
Main Stem Trinity Pump Station	0	31,612	35,872	39,459	40,244	41,029
Additional Direct Reuse	0	20,458	20,458	20,458	20,458	20,458
Additional Pipeline from Lake Tawakoni		77,994	75,777	73,563	71,346	69,128
Connect Lake Palestine		111,776	110,670	109,563	108,455	107,347
Wright Patman Lake				112,100	112,100	112,100
Fastrill Replacement Strategy						112,100
Southwest Treated Water Pipe		0	0	0	0	0
WTP Expansions			0	0	0	0
Total Water Management Strategies	***50,643***	***284,394***	***296,670***	***420,519***	***431,087***	***559,776***
Reserve (Shortage)	**1,846**	**112,921**	**89,581**	**163,632**	**104,309**	**114,188**

Notes: See Appendix H for details on demand. * Returns flows are return flows into Lake Lewisville. ** Lake Ray Hubbard Operational Efficiency is not considered to be a firm yield supply and is not included in the totals.

Table C-74
Dallas County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**13,087**	**13,087**	**13,087**	**13,087**	**13,087**	**13,087**
Currently Available Water Supplies						
DWU Sources	8,063	6,585	6,290	5,904	5,447	4,790
Local Supplies	791	791	791	791	791	791
Indirect Reuse	8,000	8,000	8,000	8,000	8,000	8,000
Direct Reuse	561	561	561	561	561	561
TRA Direct Reuse	125	125	125	125	125	125
Joe Pool Lake (Grand Prairie)	300	300	300	300	300	300
Other Aquifer	80	80	80	80	80	80
Total Current Supplies	***17,920***	***16,442***	***16,147***	***15,761***	***15,304***	***14,647***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	26	429	825	1,032	1,227	1,422
Additional Water from DWU	705	2,183	2,478	2,864	3,321	3,978
Additional TRA Las Colinas	0	7,000	7,000	7,000	7,000	7,000
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***731***	***9,612***	***10,303***	***10,896***	***11,548***	***12,400***
Reserve (Shortage)	**5,564**	**12,967**	**13,363**	**13,570**	**13,765**	**13,960**

Table C-75
Dallas County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**482**	**482**	**482**	**482**	**482**	**482**
Currently Available Water Supplies						
Local supplies	712	712	712	712	712	712
Woodbine Aquifer	703	703	703	703	703	703
Total Current Supplies	***1,415***	***1,415***	***1,415***	***1,415***	***1,415***	***1,415***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**933**	**933**	**933**	**933**	**933**	**933**

Table C-76
Dallas County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**34,115**	**37,791**	**41,148**	**44,214**	**46,703**	**46,983**
Currently Available Water Supplies						
Dallas Water Utilities	22,901	20,719	21,546	21,734	21,180	18,736
North Texas Municipal Water District	6,482	5,844	5,527	5,336	5,097	4,765
Irving (Lake Chapman)	2,047	2,267	2,469	2,653	2,802	2,819
Direct Reuse	20	20	20	20	20	20
Trinity Aquifer	890	890	890	890	890	890
Woodbine Aquifer	1,228	1,228	1,228	1,228	1,228	1,228
Total Current Supplies	***33,568***	***30,968***	***31,680***	***31,861***	***31,217***	***28,458***
Need (Demand - Current Supply)	***547***	***6,823***	***9,468***	***12,353***	***15,486***	***18,525***
Water Management Strategies						
Water Conservation	0	68	781	1,135	1,212	1,258
Additional Water from DWU	2,003	6,868	8,492	10,542	12,913	15,562
Additional Water from NTMWD	0	1,336	2,291	3,065	3,777	4,162
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2,003***	***8,272***	***11,564***	***14,742***	***17,902***	***20,982***
Reserve (Shortage)	**1,456**	**1,449**	**2,096**	**2,389**	**2,416**	**2,457**

Table C-77
Dallas County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,980**	**3,040**	**3,030**	**3,030**	**3,030**	**3,030**
Currently Available Water Supplies						
DWU Sources	274	228	217	204	188	166
Local Supplies	1,525	1,525	1,525	1,525	1,525	1,525
Trinity Aquifer	382	382	382	382	382	382
Woodbine Aquifer	323	323	323	323	323	323
Other Aquifer	513	513	513	513	513	513
Total Current Supplies	***3,017***	***2,971***	***2,960***	***2,947***	***2,931***	***2,909***
Need (Demand - Current Supply)	***0***	***69***	***70***	***83***	***99***	***121***
Water Management Strategies						
Additional Water from DWU	0	69	70	83	99	121
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***69***	***70***	***83***	***99***	***121***
Reserve (Shortage)	**37**	**0**	**0**	**0**	**0**	**0**

Table C-78
Dallas County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,474**	**1,143**	**887**	**687**	**533**	**412**
Projected Water Demand						
Municipal Demand	190	146	110	81	60	47
Total Projected Water Demand	***190***	***146***	***110***	***81***	***60***	***47***
Currently Available Water Supplies						
Trinity Aquifer	150	150	150	150	150	150
Woodbine Aquifer	59	59	59	59	59	59
Dallas Water Utilities	87	55	39	27	19	13
Total Current Supplies	***296***	***264***	***248***	***236***	***228***	***222***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	5	5	5	4	3
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***5***	***5***	***5***	***4***	***3***
Reserve (Shortage)	**107**	**123**	**143**	**160**	**172**	**178**

Table C-79
Dallas County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**3,367**	**4,290**	**11,918**	**12,000**	**12,000**	**12,000**
Currently Available Water Supplies						
Dallas Water Utilities	3,096	3,222	3,587	3,367	3,106	2,731
North Texas Municipal Water District	67	70	168	152	138	128
Mountain Creek Lake	6,400	6,400	6,400	6,400	6,400	6,400
Run-of-River	368	368	368	368	368	368
Total Current Supplies	***9,931***	***10,060***	***10,523***	***10,287***	***10,012***	***9,627***
Need (Demand - Current Supply)	***0***	***0***	***1,395***	***1,713***	***1,988***	***2,373***
Water Management Strategies						
Additional Water from DWU	271	1,068	1,413	1,633	1,894	2,269
Additional Water from NTMWD	0	16	70	88	102	112
Direct Reuse (TRA)	0	0	6,760	6,760	6,760	6,760
Total Water Management Strategies	***271***	***1,084***	***8,243***	***8,481***	***8,756***	***8,756***
Reserve (Shortage)	**6,835**	**6,854**	**6,848**	**6,768**	**6,768**	**6,383**

Table C-80
Dallas County Water Control and Improvement District Number 1

See Balch Springs (Table C-16). Dallas County WCID #6 supplies all of Balch Springs and has no customers outside of Balch Springs.

Table C-81
Dalworthington Gardens

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,467**	**2,650**	**2,771**	**2,850**	**2,902**	**2,935**
Projected Water Demand						
Municipal Demand	771	816	847	862	874	884
Total Projected Water Demand	***771***	***816***	***847***	***862***	***874***	***884***
Currently Available Water Supplies						
Trinity Aquifer	266	266	266	266	266	266
Fort Worth (TRWD)	500	505	453	402	359	318
Total Current Supplies	***766***	***771***	***719***	***668***	***625***	***584***
Need (Demand - Current Supply)	***5***	***45***	***128***	***194***	***249***	***300***
Water Management Strategies						
Water Conservation	5	36	49	58	66	74
Additional Water from Fort Worth	0	9	79	136	183	226
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***45***	***128***	***194***	***249***	***300***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-82
Danville Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,570**	**6,315**	**7,860**	**9,444**	**11,101**	**12,865**
Projected Water Demand						
Municipal Demand	845	1,153	1,417	1,693	1,990	2,306
Total Projected Water Demand	***845***	***1,153***	***1,417***	***1,693***	***1,990***	***2,306***
Currently Available Water Supplies						
McKinney (NTMWD)	834	938	1,002	1,075	1,143	1,231
Total Current Supplies	***834***	***938***	***1,002***	***1,075***	***1,143***	***1,231***
Need (Demand - Current Supply)	***11***	***215***	***415***	***618***	***847***	***1,075***
Water Management Strategies						
Water Conservation	11	72	108	143	184	232
Additional Water from McKinney	0	143	307	475	663	843
Total Water Management Strategies	***11***	***215***	***415***	***618***	***847***	***1,075***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-83
Dawson

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**909**	**971**	**1,036**	**1,106**	**1,190**	**1,293**
Projected Water Demand						
Municipal Demand	177	185	195	204	219	238
Total Projected Water Demand	***177***	***185***	***195***	***204***	***219***	***238***
Currently Available Water Supplies						
Corsicana	177	185	183	185	191	197
Total Current Supplies	***177***	***185***	***183***	***185***	***191***	***197***
Need (Demand - Current Supply)	***0***	***0***	***12***	***19***	***28***	***41***
Water Management Strategies						
Water Conservation	2	5	7	13	16	19
Additional Water from Corsicana	0	0	0	0	14	31
New Water Treatment Plant	0	56	56	56	56	56
Total Water Management Strategies	***2***	***61***	***63***	***69***	***86***	***106***
Reserve (Shortage)	**2**	**61**	**51**	**50**	**58**	**65**

Table C-84
Decatur

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,804**	**8,508**	**11,738**	**15,253**	**19,751**	**23,225**
Projected Water Demand						
Municipal Demand	1,639	2,011	2,748	3,537	4,580	5,385
Total Projected Water Demand	***1,639***	***2,011***	***2,748***	***3,537***	***4,580***	***5,385***
Currently Available Water Supplies						
Wise Co. Water Supply District (TRWD)	1,614	1,754	1,754	1,754	1,754	1,754
Total Current Supplies	***1,614***	***1,754***	***1,754***	***1,754***	***1,754***	***1,754***
Need (Demand - Current Supply)	***25***	***257***	***994***	***1,783***	***2,826***	***3,631***
Water Management Strategies						
Water Conservation	25	108	189	278	398	514
Additional Water from Wise Co. WSD		149	805	1,505	2,428	3,117
Total Water Management Strategies	***25***	***257***	***994***	***1,783***	***2,826***	***3,631***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-85
Denison

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (in City)	**25,000**	**28,000**	**30,000**	**31,000**	**32,000**	**33,000**
Projected Water Demand						
Municipal Demand	5,489	6,053	6,385	6,493	6,667	6,875
Manufacturing and Customers	1,417	1,480	1,516	1,559	1,612	1,686
Total Projected Demand	***6,906***	***7,533***	***7,901***	***8,052***	***8,279***	***8,561***
Currently Available Water Supplies						
Lake Randell	1,400	1,400	1,400	1,400	1,400	1,400
Lake Texoma	5,791	5,791	5,791	5,791	5,791	5,791
Trinity Aquifer	157	157	157	157	157	157
Woodbine Aquifer	155	155	155	155	155	155
Total Current Supplies	***7,503***	***7,503***	***7,503***	***7,503***	***7,503***	***7,503***
Need (Demand - Current Supply)	***0***	***30***	***398***	***549***	***776***	***1,058***
Water Management Strategies						
Water Conservation	43	145	409	535	605	681
2 MGD WTP Expansion and more Texoma	0	0	0	1,121	1,121	1,121
Infrastructure Improvements	0	0	0	0	0	0
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***43***	***145***	***409***	***1,656***	***1,726***	***1,802***
Reserve (Shortage)	**640**	**115**	**11**	**1,107**	**950**	**744**

Table C-86
Denton

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (in City)	**120,726**	**173,980**	**229,964**	**295,000**	**363,586**	**498,488**
Projected Water Demand						
Municipal Demand	24,612	34,884	45,594	58,158	71,679	98,275
Manufacturing and Customers*	5,595	1,703	1,879	2,056	2,224	2,391
Total Projected Demand	***30,207***	***36,587***	***47,473***	***60,214***	***73,903***	***100,666***
Currently Available Water Supplies						
Lake Lewisville	7,918	7,817	7,715	7,613	7,512	7,410
Lake Ray Roberts	18,980	18,720	18,460	18,200	17,940	17,680
Direct Reuse	1,233	2,242	2,690	3,251	3,924	4,708
Indirect Reuse	1,682	8,861	11,557	12,907	12,726	12,545
Dallas Water Utilities	0	0	5,310	12,883	20,694	33,332
Subtotal	29,813	37,640	45,732	54,854	62,796	75,675
Total Current Supplies (limited by treatment capacity)	***29,813***	***34,191***	***34,639***	***35,200***	***35,873***	***36,657***
Need (Demand - Current Supply)	***394***	***2,396***	***12,834***	***25,014***	***38,030***	***64,009***
Water Management Strategies						
Water Conservation	394	1,893	3,305	4,820	6,564	9,800
20 MGD Plant Expansion		503	9,529	11,200	11,200	11,200
30 MGD Plant Expansion			0	8,994	16,800	16,800
20 MGD Plant Expansion				0	3,466	11,200
30 MGD Plant Expansion					0	15,009
25 MGD Plant Expansion						0
25 MGD Plant Expansion						0
Total Water Management Strategies	***394***	***2,396***	***12,834***	***25,014***	***38,030***	***64,009***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

* Includes UTRWD in 2010 only and Denton County non-municipal in all years

Table C-87
Denton County Fresh Water Supply District Number 1A

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,092**	**4,952**	**6,701**	**8,501**	**10,328**	**12,240**
Projected Water Demand						
Municipal Demand	991	1,581	2,132	2,704	3,286	3,894
Total Projected Demand	***991***	***1,581***	***2,132***	***2,704***	***3,286***	***3,894***
Currently Available Water Supplies						
Upper Trinity Regional Water District	871	379	347	342	333	347
Lewisville (DWU)	91	392	505	601	673	702
Total Current Supplies	***962***	***771***	***852***	***943***	***1,006***	***1,049***
Need (Demand - Current Supply)	***29***	***810***	***1,280***	***1,761***	***2,280***	***2,845***
Water Management Strategies						
Water Conservation	47	133	175	245	327	420
Additional Water from UTRWD	0	591	964	1,306	1,650	1,981
Additional Water from Lewisville (DWU)	0	86	141	210	303	444
Total Water Management Strategies	***47***	***810***	***1,280***	***1,761***	***2,280***	***2,845***
Reserve (Shortage)	**18**	**0**	**0**	**0**	**0**	**0**

Table C-88
Denton County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,108**	**2,108**	**2,108**	**2,108**	**2,108**	**2,108**
Currently Available Water Supplies						
Direct Reuse (UTRWD)	897	897	897	897	897	897
Direct Reuse (Denton)	401	401	401	401	401	401
Direct Reuse (Trophy Club MUD #1)	800	800	800	800	800	800
Dallas Water Utilities	2,207	1,802	1,722	1,616	1,491	1,311
Woodbine Aquifer	1,337	1,337	1,337	1,337	1,337	1,337
Total Current Supplies	***5,642***	***5,237***	***5,157***	***5,051***	***4,926***	***4,746***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Additional Groundwater	200	200	200	200	200	200
TRA Direct Reuse	0	3,750	3,750	3,750	3,750	3,750
Additional UTRWD Direct Reuse			560	1,121	2,240	2,240
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***200***	***3,950***	***4,510***	***5,071***	***6,190***	***6,190***
Reserve (Shortage)	**3,734**	**7,079**	**7,559**	**8,014**	**9,008**	**8,828**

Table C-89
Denton County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,235**	**1,235**	**1,235**	**1,235**	**1,235**	**1,235**
Currently Available Water Supplies						
Local Supplies	935	935	935	935	935	935
Trinity Aquifer	246	246	246	246	246	246
Woodbine Aquifer	531	531	531	531	531	531
Total Current Supplies	***1,712***	***1,712***	***1,712***	***1,712***	***1,712***	***1,712***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**477**	**477**	**477**	**477**	**477**	**477**

Table C-90
Denton County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,068**	**1,239**	**1,408**	**1,579**	**1,731**	**1,880**
Currently Available Water Supplies						
Upper Trinity Regional Water District	175	108	70	52	45	44
Denton (Lake Ray Roberts)	335	368	326	293	267	217
Denton (Lake Lewisville)	140	153	136	123	112	91
Dallas Water Utilities	393	373	404	426	430	411
Trinity Aquifer	59	59	59	59	59	59
North Texas Municipal Water District	53	50	49	50	50	50
Total Current Supplies	***1,155***	***1,111***	***1,044***	***1,003***	***963***	***872***
Need (Demand - Current Supply)	***0***	***128***	***364***	***576***	***768***	***1,008***
Water Management Strategies						
Water Conservation	0	2	29	44	49	53
Additional Water from UTRWD	4	193	218	226	249	285
Additional Water from DWU	34	123	159	206	262	341
Additional Water from NTMWD	0	12	21	29	37	44
Additional Water from Denton	6	37	171	295	401	538
Additional Groundwater	200	200	200	200	200	200
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***244***	***567***	***798***	***1,000***	***1,198***	***1,461***
Reserve (Shortage)	**331**	**439**	**434**	**424**	**430**	**453**

Table C-91
Denton County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,571**	**751**	**751**	**751**	**751**	**751**
Currently Available Water Supplies						
Local Supplies	2,019	2,019	2,019	2,019	2,019	2,019
Upper Trinity Regional Water District (through multiple suppliers)	537	94	64	50	40	35
Trinity Aquifer	1,571	1,571	1,571	1,571	1,571	1,571
Total Current Supplies	***4,127***	***3,684***	***3,654***	***3,640***	***3,630***	***3,625***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Additional Water from UTRWD	13	169	199	213	223	228
Additional Groundwater	200	200	200	200	200	200
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***213***	***369***	***399***	***413***	***423***	***428***
Reserve (Shortage)	**2,769**	**3,302**	**3,302**	**3,302**	**3,302**	**3,302**

Table C-92
Denton County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**42,742**	**56,446**	**65,410**	**73,718**	**81,794**	**90,112**
Projected Water Demand						
Municipal Demand	8,905	11,571	13,262	14,863	16,492	18,169
Total Projected Water Demand	***8,905***	***11,571***	***13,262***	***14,863***	***16,492***	***18,169***
Currently Available Water Supplies						
Fort Worth (TRWD)	439	531	517	501	487	468
Upper Trinity Regional Water District	5,963	3,094	2,545	2,308	2,122	2,106
Other Aquifer	5	5	5	5	5	5
Trinity Aquifer	2,550	2,550	2,550	2,550	2,550	2,550
Woodbine Aquifer	825	825	825	825	825	825
Total Current Supplies	***9,782***	***7,005***	***6,442***	***6,189***	***5,989***	***5,954***
Need (Demand - Current Supply)	***0***	***4,566***	***6,820***	***8,674***	***10,503***	***12,215***
Water Management Strategies						
Water Conservation	113	378	543	661	788	929
Additional Water from Fort Worth	6	48	146	242	338	440
Additional Water from UTRWD	34	5,171	7,396	9,272	11,112	12,816
Additional Groundwater	200	200	200	200	200	200
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***353***	***5,797***	***8,285***	***10,375***	***12,438***	***14,385***
Reserve (Shortage)	**1,230**	**1,231**	**1,465**	**1,701**	**1,935**	**2,170**

Table C-93
Denton County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**644**	**744**	**844**	**944**	**1,044**	**1,144**
Currently Available Water Supplies						
Direct Reuse (Denton)	1,233	2,242	2,690	3,251	3,924	4,708
Total Current Supplies	***1,233***	***2,242***	***2,690***	***3,251***	***3,924***	***4,708***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Groundwater	200	200	200	200	200	200
Total Water Management Strategies	***200***	***200***	***200***	***200***	***200***	***200***
Reserve (Shortage)	**789**	**1,698**	**2,046**	**2,507**	**3,080**	**3,764**

Table C-94
DeSoto

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**47,649**	**57,243**	**65,849**	**73,881**	**82,923**	**85,400**
Projected Water Demand						
Municipal Demand	10,355	12,375	14,162	15,807	17,741	18,271
Total Projected Demand	***10,355***	***12,375***	***14,162***	***15,807***	***17,741***	***18,271***
Currently Available Water Supplies						
Dallas Water Utilities	9,522	9,294	10,158	10,644	11,022	9,981
Total Current Supplies	***9,522***	***9,294***	***10,158***	***10,644***	***11,022***	***9,981***
Need (Demand - Current Supply)	***833***	***3,081***	***4,004***	***5,163***	***6,719***	***8,290***
Water Management Strategies						
Water Conservation	322	721	1,009	1,269	1,571	1,773
Additional Water from DWU	511	2,360	2,995	3,894	5,148	6,517
Total Water Management Strategies	***833***	***3,081***	***4,004***	***5,163***	***6,719***	***8,290***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-95
Double Oak

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,000**	**3,000**	**3,000**	**3,000**	**3,000**	**3,000**
Projected Water Demand						
Municipal Demand	716	706	699	696	692	692
Total Projected Water Demand	***716***	***706***	***699***	***696***	***692***	***692***
Currently Available Water Supplies						
Bartonville WSC (UTRWD and groundwater)	703	363	303	276	258	249
Total Current Supplies	***703***	***363***	***303***	***276***	***258***	***249***
Need (Demand - Current Supply)	***13***	***343***	***396***	***420***	***434***	***443***
Water Management Strategies						
Water Conservation	21	34	43	49	55	61
Additional Water from Bartonville WSC	0	309	370	405	430	485
Total Water Management Strategies	***21***	***343***	***413***	***454***	***485***	***546***
Reserve (Shortage)	**8**	**0**	**17**	**34**	**51**	**103**

Table C-96
Duncanville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**37,100**	**37,100**	**37,100**	**37,100**	**37,100**	**37,100**
Projected Water Demand						
Municipal Demand	7,605	7,563	7,522	7,439	7,356	7,356
Total Projected Demand	***7,605***	***7,563***	***7,522***	***7,439***	***7,356***	***7,356***
Currently Available Water Supplies						
Dallas Water Utilities	6,993	5,680	5,396	5,009	4,570	4,018
Total Current Supplies	***6,993***	***5,680***	***5,396***	***5,009***	***4,570***	***4,018***
Need (Demand - Current Supply)	***612***	***1,883***	***2,126***	***2,430***	***2,786***	***3,338***
Water Management Strategies						
Water Conservation	367	841	943	1,000	1,052	1,113
Additional Water from DWU	245	1,042	1,183	1,430	1,734	2,225
Total Water Management Strategies	***612***	***1,883***	***2,126***	***2,430***	***2,786***	***3,338***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-97
East Cedar Creek Fresh Water Supply District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (Outside Gun Barrel City)	**9,973**	**11,178**	**13,363**	**14,568**	**15,773**	**16,978**
Projected Water Demand						
Outside Gun Barrel City	1,698	1,866	2,215	2,382	2,580	2,777
In Gun Barrel City	704	977	1,104	1,243	1,411	1,632
Total Projected Demand	***2,402***	***2,843***	***3,319***	***3,625***	***3,991***	***4,409***
Currently Available Water Supplies						
Tarrant Regional Water District	2,330	2,608	2,587	2,446	2,358	2,271
Total Current Supplies	***2,330***	***2,608***	***2,587***	***2,446***	***2,358***	***2,271***
Need (Demand - Current Supply)	***72***	***235***	***732***	***1,179***	***1,633***	***2,138***
Water Management Strategies						
Water Conservation	72	192	280	347	423	516
Additional Water from TRWD (current WTP)	0	26	47	188	276	363
2 MGD Plant Expansion and TRWD	0	17	405	644	934	1,120
2 MGD Plant Expansion and TRWD	0					139
Total Water Management Strategies	***72***	***235***	***732***	***1,179***	***1,633***	***2,138***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-98
East Fork Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,778**	**10,003**	**11,075**	**12,173**	**13,329**	**14,568**
Projected Water Demand						
Municipal Demand	1,239	1,378	1,501	1,637	1,777	1,942
Total Projected Demand	***1,239***	***1,378***	***1,501***	***1,637***	***1,777***	***1,942***
Currently Available Water Supplies						
North Texas Municipal Water District	1,215	1,122	1,061	1,040	1,021	1,037
Total Current Supplies	***1,215***	***1,122***	***1,061***	***1,040***	***1,021***	***1,037***
Need (Demand - Current Supply)	***24***	***256***	***440***	***597***	***756***	***905***
Water Management Strategies						
Water Conservation	24	66	84	98	113	130
Additional Water from NTMWD	0	190	356	499	643	775
Total Water Management Strategies	***24***	***256***	***440***	***597***	***756***	***905***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-99
Ector

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**652**	**691**	**720**	**741**	**763**	**786**
Projected Water Demand						
Municipal Demand	96	99	101	102	104	107
Total Projected Demand	***96***	***99***	***101***	***102***	***104***	***107***
Currently Available Water Supplies						
Woodbine Aquifer	113	113	113	113	113	113
Total Current Supplies	***113***	***113***	***113***	***113***	***113***	***113***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	4	5	6	6	7
Fannin County Water Supply Project	0	2	3	4	6	9
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***6***	***8***	***10***	***12***	***16***
Reserve (Shortage)	**18**	**20**	**20**	**21**	**21**	**22**

Table C-100
Edgecliff

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,550**	**2,550**	**2,550**	**2,550**	**2,550**	**2,550**
Projected Water Demand						
Municipal Demand	460	451	443	434	428	428
Total Projected Demand	***460***	***451***	***443***	***434***	***428***	***428***
Currently Available Water Supplies						
Fort Worth (TRWD)	456	414	345	293	253	220
Total Current Supplies	***456***	***414***	***346***	***293***	***253***	***221***
Need (Demand - Current Supply)	***4***	***37***	***97***	***141***	***175***	***207***
Water Management Strategies						
Water Conservation	4	24	31	35	38	42
Additional Water from Fort Worth	0	13	66	106	137	165
Total Water Management Strategies	***4***	***37***	***97***	***141***	***175***	***207***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-101
Ellis County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**583**	**583**	**583**	**583**	**583**	**583**
Currently Available Water Supplies						
Local Supplies	3	3	3	3	3	3
Trinity Aquifer	129	129	129	129	129	129
Reuse	125	125	125	125	125	125
Total Current Supplies	***257***	***257***	***257***	***257***	***257***	***257***
Need (Demand - Current Supply)	***326***	***326***	***326***	***326***	***326***	***326***
Water Management Strategies						
Water Conservation	1	15	29	37	44	51
New wells in the Woodbine Aquifer	563	563	563	563	563	563
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***564***	***578***	***592***	***600***	***607***	***614***
Reserve (Shortage)	**238**	**252**	**266**	**274**	**281**	**288**

Table C-102
Ellis County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,183**	**1,183**	**1,183**	**1,183**	**1,183**	**1,183**
Currently Available Water Supplies						
Local Supplies	1,688	1,688	1,688	1,688	1,688	1,688
Woodbine Aquifer	154	154	154	154	154	154
Total Current Supplies	***1,842***	***1,842***	***1,842***	***1,842***	***1,842***	***1,842***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**659**	**659**	**659**	**659**	**659**	**659**

Table C-103
Ellis County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**3,466**	**3,670**	**3,841**	**3,987**	**4,089**	**3,912**
Currently Available Water Supplies						
Trinity Aquifer	1,035	1,035	1,035	1,035	1,035	1,035
Woodbine Aquifer	419	419	419	419	419	419
Midlothian	1,295	940	1,032	1,035	998	880
Ennis	351	343	325	293	220	176
Waxahachie	1,136	890	889	863	804	692
Total Current Supplies	***4,236***	***3,627***	***3,700***	***3,645***	***3,476***	***3,202***
Need (Demand - Current Supply)	***0***	***43***	***141***	***342***	***613***	***710***
Water Management Strategies						
Additional Water from Midlothian	0	533	504	560	638	685
Additional Water from Ennis	0	4	28	56	59	76
Additional Water from Waxahachie	0	8	53	165	278	354
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***545***	***585***	***781***	***975***	***1,115***
Reserve (Shortage)	**770**	**502**	**444**	**439**	**362**	**405**

Table C-104
Ellis County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**210**	**140**	**140**	**140**	**140**	**140**
Currently Available Water Supplies						
Woodbine Aquifer	231	231	231	231	231	231
Total Current Supplies	***231***	***231***	***231***	***231***	***231***	***231***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**21**	**91**	**91**	**91**	**91**	**91**

Table C-105
Ellis County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**10,707**	**10,707**	**10,707**	**10,707**	**10,707**	**10,707**
Projected Water Demand						
Municipal Demand	2,015	2,003	1,979	1,967	1,955	1,955
Total Projected Water Demand	***2,015***	***2,003***	***1,979***	***1,967***	***1,955***	***1,955***
Currently Available Water Supplies						
Tarrant Regional Water District (through various suppliers)	92	72	86	112	117	111
Waxahachie (Lake Waxahachie)	198	163	113	37	0	0
Ennis (Lake Bardwell)	48	39	31	25	19	15
Other Aquifer	113	113	113	113	113	113
Trinity Aquifer	287	287	287	287	287	287
Woodbine Aquifer	1,400	1,400	1,400	1,400	1,400	1,400
Total Current Supplies	***2,138***	***2,074***	***2,030***	***1,974***	***1,936***	***1,926***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***19***	***29***
Water Management Strategies						
Water Conservation	17	54	73	81	87	94
Additional Groundwater (Woodbine)	0	865	865	865	865	865
Additional Water from TRWD (through Waxahachie, Rockett SUD, and Ennis)	0	0	0	0	4	24
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***17***	***919***	***938***	***946***	***956***	***983***
Reserve (Shortage)	**140**	**990**	**989**	**953**	**937**	**954**

Table C-106
Ellis County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**981**	**698**	**1,450**	**3,741**	**5,754**	**7,878**
Currently Available Water Supplies						
Ennis Direct Reuse	800	800	800	800	800	800
Ennis Treated Water	601	601	601	601	601	601
Midlothian	209	144	151	145	137	126
Total Current Supplies	***1,610***	***1,545***	***1,552***	***1,546***	***1,538***	***1,527***
Need (Demand - Current Supply)	***0***	***0***	***0***	***2,195***	***4,216***	***6,351***
Water Management Strategies						
Additional water from Midlothian	15	80	73	79	107	118
Waxahachie Steam Electric Power Supply (TRWD)	0	0	0	2,116	4,128	4,454
Trinity River Authority Ellis Co. Reuse	0	0	0	0	0	2,200
Total Water Management Strategies	***15***	***80***	***73***	***2,195***	***4,235***	***6,772***
Reserve (Shortage)	**644**	**927**	**175**	**0**	**19**	**421**

Table C-107
Ennis

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (Inside City)	**20,539**	**26,290**	**33,655**	**43,081**	**55,148**	**70,596**
Projected Water Demand						
Inside City	3,497	4,358	5,504	6,949	8,834	11,308
Manufacturing, Steam Electric and Customers	1,970	2,062	2,134	2,205	2,280	2,337
Total Projected Demand	***5,467***	***6,420***	***7,638***	***9,154***	***11,114***	***13,645***
Currently Available Water Supplies						
Trinity River Authority (Lake Bardwell)[a]	4,712	4,484	4,257	4,030	3,802	3,575
Direct Reuse (Steam Electric)	800	800	800	800	800	800
Contracted Amount from TRWD	3,991	3,991	3,991	3,991	3,991	3,991
Tarrant Regional WD (through TRA)	0	695	1,932	3,097	2,776	3,921
Total Current Supplies	***5,512***	***5,979***	***6,989***	***7,526***	***7,378***	***7,526***
Need (Demand - Current Supply)	***0***	***441***	***649***	***1,628***	***3,736***	***6,119***
Water Management Strategies						
Water Conservation	188	441	649	894	1,215	1,653
Indirect reuse (requires WTP Expansions)				333	2,521	3,696
Other Additional Supply made Usable by WTP Expansions				401		770
Total Water Management Strategies	***188***	***441***	***649***	***1,628***	***3,736***	***6,119***
Reserve (Shortage)	**233**	**0**	**0**	**0**	**0**	**0**

(a) Ennis has a contract with the Trinity River Authority for 5,200 acre-feet per year. The yield of Bardwell is decreasing over time due to sedimentation, and Ennis' share of the reduced yield is shown here.

Table C-108
Euless

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**53,446**	**60,416**	**63,854**	**65,550**	**66,386**	**66,798**
Projected Water Demand						
Municipal Demand	9,698	10,760	11,158	11,308	11,377	11,448
Total Projected Demand	***9,698***	***10,760***	***11,158***	***11,308***	***11,377***	***11,448***
Currently Available Water Supplies						
Trinity Aquifer	1,016	1,016	1,016	1,016	1,016	1,016
Trinity River Authority (TRWD)	8,050	8,607	7,623	6,698	5,905	5,186
Total Current Supplies	***9,066***	***9,623***	***8,639***	***7,714***	***6,921***	***6,202***
Need (Demand - Current Supply)	***632***	***1,137***	***2,519***	***3,594***	***4,456***	***5,246***
Water Management Strategies						
Water Conservation	264	640	943	1,063	1,167	1,270
Additional Water from TRA (TRWD)	0	129	1,208	2,163	2,921	3,608
Fort Worth Direct Reuse	368	368	368	368	368	368
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***632***	***1,137***	***2,519***	***3,594***	***4,456***	***5,246***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-109
Eustace

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**865**	**865**	**865**	**865**	**865**	**865**
Projected Water Demand						
Municipal Demand	146	143	140	138	137	137
Total Projected Demand	***146***	***143***	***140***	***138***	***137***	***137***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	152	152	152	152	152	152
Total Current Supplies	***152***	***152***	***152***	***152***	***152***	***152***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	5	7	7	8	8
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***5***	***7***	***7***	***8***	***8***
Reserve (Shortage)	**8**	**14**	**19**	**21**	**23**	**23**

Table C-110
Everman

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,200**	**6,600**	**6,600**	**6,600**	**6,600**	**6,600**
Projected Water Demand						
Municipal Demand	771	798	776	754	747	747
Total Projected Demand	***771***	***798***	***776***	***754***	***747***	***747***
Currently Available Water Supplies						
Trinity Aquifer	532	532	532	532	532	532
Fort Worth (TRWD)	230	244	190	150	127	111
Total Current Supplies	***762***	***776***	***722***	***682***	***659***	***643***
Need (Demand - Current Supply)	***9***	***22***	***54***	***72***	***88***	***104***
Water Management Strategies						
Water Conservation	9	30	40	42	45	47
Additional Water from Fort Worth	0	0	14	30	43	57
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***9***	***30***	***54***	***72***	***88***	***104***
Reserve (Shortage)	**0**	**8**	**0**	**0**	**0**	**0**

Table C-111
Fairfield

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,700**	**4,500**	**5,300**	**6,100**	**6,900**	**7,500**
Projected Water Demand						
Municipal Demand	829	988	1,146	1,298	1,461	1,588
Total Projected Demand	***829***	***988***	***1,146***	***1,298***	***1,461***	***1,588***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	1,292	1,292	1,292	1,292	1,292	1,292
Total Current Supplies	***1,292***	***1,292***	***1,292***	***1,292***	***1,292***	***1,292***
Need (Demand - Current Supply)	***0***	***0***	***0***	***6***	***169***	***296***
Water Management Strategies						
Water Conservation	7	24	37	76	98	120
Purchase water from TRWD	0	0	0	4	100	176
New well in Carrizo-Wilcox Aquifer	0	0	0	282	282	282
Supplemental Wells	0	0	0	0	0	0
New WTP	0	0	0	0	0	0
Total Water Management Strategies	***7***	***24***	***37***	***362***	***480***	***578***
Reserve (Shortage)	**470**	**328**	**183**	**356**	**311**	**282**

Table C-112
Fairview

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,300**	**10,800**	**13,600**	**18,000**	**18,000**	**18,000**
Projected Water Demand						
Municipal Demand	3,469	3,992	5,012	6,593	6,593	6,593
Total Projected Demand	***3,469***	***3,992***	***5,012***	***6,593***	***6,593***	***6,593***
Currently Available Water Supplies						
North Texas Municipal Water District	3,392	3,249	3,543	4,187	3,787	3,519
Total Current Supplies	***3,392***	***3,249***	***3,543***	***4,187***	***3,787***	***3,519***
Need (Demand - Current Supply)	***77***	***743***	***1,469***	***2,406***	***2,806***	***3,074***
Water Management Strategies						
Water Conservation	77	252	410	597	653	708
Additional Water from NTMWD	0	491	1,059	1,809	2,153	2,366
Total Water Management Strategies	***77***	***743***	***1,469***	***2,406***	***2,806***	***3,074***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-113
Fannin County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**4,608**	**4,608**	**4,608**	**4,608**	**4,608**	**4,608**
Currently Available Water Supplies						
Red River	14,758	14,758	14,758	14,758	14,758	14,758
Other Aquifer	2,620	2,620	2,620	2,620	2,620	2,620
Total Current Supplies	***17,378***	***17,378***	***17,378***	***17,378***	***17,378***	***17,378***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**12,770**	**12,770**	**12,770**	**12,770**	**12,770**	**12,770**

Table C-114
Fannin County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,270**	**1,270**	**1,270**	**1,270**	**1,270**	**1,270**
Currently Available Water Supplies						
Local Supplies	1,583	1,583	1,583	1,583	1,583	1,583
Trinity Aquifer	72	72	72	72	72	72
Woodbine Aquifer	302	302	302	302	302	302
Total Current Supplies	***1,957***	***1,957***	***1,957***	***1,957***	***1,957***	***1,957***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**687**	**687**	**687**	**687**	**687**	**687**

Table C-115
Fannin County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**73**	**82**	**90**	**98**	**105**	**114**
Currently Available Water Supplies						
Lake Bonham	73	82	90	98	105	114
Total Current Supplies	***73***	***82***	***90***	***98***	***105***	***114***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-116
Fannin County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**12**	**12**	**12**	**12**	**12**	**12**
Currently Available Water Supplies						
Run-Of-River	72	72	72	72	72	72
Total Current Supplies	***72***	***72***	***72***	***72***	***72***	***72***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**60**	**60**	**60**	**60**	**60**	**60**

Table C-117
Fannin County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**11,610**	**11,568**	**11,391**	**11,091**	**10,735**	**10,322**
Projected Water Demand						
Municipal Demand	1,496	1,452	1,390	1,317	1,251	1,202
Total Projected Water Demand	***1,496***	***1,452***	***1,390***	***1,317***	***1,251***	***1,202***
Currently Available Water Supplies						
Lake Bonham (NTMWD)	286	409	491	554	0	0
Run-of-river - Red River	20	20	20	20	20	20
Run-of-river - Sulphur River	49	49	49	49	49	49
Trinity Aquifer	308	308	308	308	308	308
Woodbine Aquifer	831	831	831	831	831	831
Total Current Supplies	***1,494***	***1,617***	***1,699***	***1,762***	***1,208***	***1,208***
Need (Demand - Current Supply)	***2***	***0***	***0***	***0***	***43***	***0***
Water Management Strategies						
Water Conservation	16	53	70	74	75	76
Fannin County Water Supply Project	0	62	145	237	258	265
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***16***	***115***	***215***	***311***	***333***	***341***
Reserve (Shortage)	**14**	**280**	**524**	**756**	**290**	**347**

Table C-118
Fannin County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Water Demand	**1,261**	**6,363**	**11,474**	**11,910**	**12,443**	**13,092**
Currently Available Water Supplies						
Lake Texoma	16,400	16,400	16,400	16,400	16,400	16,400
Woodbine Aquifer	80	80	80	80	80	80
Total Current Supplies	***16,480***	***16,480***	***16,480***	***16,480***	***16,480***	***16,480***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**15,219**	**10,117**	**5,006**	**4,570**	**4,037**	**3,388**

Table C-119
Farmers Branch

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**30,470**	**33,161**	**35,608**	**37,833**	**39,855**	**41,693**
Projected Water Demand						
Municipal Demand	11,229	12,109	12,883	13,603	14,286	14,945
Total Projected Demand	***11,229***	***12,109***	***12,883***	***13,603***	***14,286***	***14,945***
Currently Available Water Supplies						
Dallas Water Utilities	10,326	9,094	9,241	9,160	8,875	8,164
Total Current Supplies	***10,326***	***9,094***	***9,241***	***9,160***	***8,875***	***8,164***
Need (Demand - Current Supply)	***903***	***3,015***	***3,642***	***4,443***	***5,411***	***6,781***
Water Management Strategies						
Water Conservation	496	910	1,144	1,353	1,546	1,745
Additional Water from DWU	407	2,105	2,498	3,090	3,865	5,036
Total Water Management Strategies	***903***	***3,015***	***3,642***	***4,443***	***5,411***	***6,781***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-120
Farmersville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**3,683**	**7,000**	**10,000**	**15,000**	**22,000**	**30,000**
Projected Water Demand						
Municipal Demand	627	1,176	1,680	2,520	3,696	5,041
Total Projected Demand	***627***	***1,176***	***1,680***	***2,520***	***3,696***	***5,041***
Currently Available Water Supplies						
North Texas Municipal Water District	621	957	1,188	1,601	2,123	2,691
Total Current Supplies	***621***	***957***	***1,188***	***1,601***	***2,123***	***2,691***
Need (Demand - Current Supply)	***6***	***219***	***492***	***919***	***1,573***	***2,350***
Water Management Strategies						
Water Conservation	6	59	103	176	290	437
Additional Water from NTMWD	0	160	389	743	1,283	1,913
Total Water Management Strategies	***6***	***219***	***492***	***919***	***1,573***	***2,350***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-121
Fate

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**6,222**	**12,007**	**15,062**	**17,923**	**19,997**	**21,379**
Projected Water Demand						
Municipal Demand	2,091	3,968	4,943	5,842	6,496	6,945
Total Projected Demand	***2,091***	***3,968***	***4,943***	***5,842***	***6,496***	***6,945***
Currently Available Water Supplies						
North Texas Municipal Water District	2,070	3,230	3,494	3,710	3,731	3,707
Total Current Supplies	***2,070***	***3,230***	***3,494***	***3,710***	***3,731***	***3,707***
Need (Demand - Current Supply)	***21***	***738***	***1,449***	***2,132***	***2,765***	***3,238***
Water Management Strategies						
Water Conservation	21	164	253	349	443	531
Additional Water from NTMWD	0	574	1,196	1,783	2,322	2,707
Total Water Management Strategies	***21***	***738***	***1,449***	***2,132***	***2,765***	***3,238***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-122
Ferris

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,631**	**3,000**	**3,400**	**3,900**	**4,500**	**5,000**
Projected Water Demand						
Municipal Demand	401	447	495	555	630	700
Total Projected Demand	***401***	***447***	***495***	***555***	***630***	***700***
Currently Available Water Supplies						
Woodbine Aquifer	227	227	227	227	227	227
Rockett Special Utility District (TRWD)	167	202	209	221	238	244
Total Current Supplies	***394***	***429***	***436***	***448***	***465***	***471***
Need (Demand - Current Supply)	***7***	***18***	***59***	***107***	***165***	***229***
Water Management Strategies						
Water Conservation	7	16	23	29	35	41
Additional Water from Rockett SUD	0	2	36	78	130	188
Supplemental Wells	0	0	0	0	0	
Total Water Management Strategies	***7***	***18***	***59***	***107***	***165***	***229***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-123
Files Valley Water Supply Corporation (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**1,000**	**1,115**	**1,230**	**1,345**	**1,460**	**1,575**
Projected Water Demand						
Municipal Demand in Region C	208	227	247	265	286	309
Total Projected Region C Demand	***208***	***227***	***247***	***265***	***286***	***309***
Currently Available Water Supplies						
Aquilla Water Supply District (BRA - Region G)	208	227	247	265	286	309
Total Current Supplies	***208***	***227***	***247***	***265***	***286***	***309***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	6	9	10	12	14
Ellis County Water Supply Project (Buena Vista-Bethel WSC from Waxahachie from TRA from TRWD)	0	100	100	100	100	100
Total Water Management Strategies	***2***	***106***	***109***	***110***	***112***	***114***
Region C Reserve (Shortage)	**2**	**106**	**109**	**110**	**112**	**114**

Table C-124
Flo Community WSC (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Region C Population	**252**	**263**	**269**	**271**	**271**	**271**
Projected Water Demand						
Municipal Demand in Region C	20	20	20	20	19	19
Total Projected Region C Demand	***20***	***20***	***20***	***20***	***19***	***19***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	25	25	25	25	25	25
Total Current Supplies	***25***	***25***	***25***	***25***	***25***	***25***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation - Basic Package	0	1	2	2	2	2
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***1***	***2***	***2***	***2***	***2***
Reserve (Shortage)	**5**	**6**	**7**	**7**	**8**	**8**

Table C-125
Flower Mound

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**66,667**	**75,555**	**93,000**	**93,000**	**93,000**	**93,000**
Projected Water Demand						
Municipal Demand	17,325	23,189	32,085	32,085	32,085	32,085
Total Projected Demand	***17,325***	***23,189***	***32,085***	***32,085***	***32,085***	***32,085***
Currently Available Water Supplies						
Upper Trinity Regional Water District	8,454	4,565	4,798	3,727	2,992	2,626
Dallas Water Utilities	7,965	7,837	8,837	8,296	7,654	6,730
Total Current Supplies	***16,419***	***12,402***	***13,635***	***12,023***	***10,646***	***9,356***
Need (Demand - Current Supply)	***906***	***10,787***	***18,450***	***20,062***	***21,439***	***22,729***
Water Management Strategies						
Water Conservation	859	1,798	2,822	3,123	3,393	3,660
Additional Water from UTRWD	0	7,200	13,228	14,114	14,683	14,884
Additional Water from DWU	267	1,789	2,400	2,825	3,363	4,185
Total Water Management Strategies	***1,126***	***10,787***	***18,450***	***20,062***	***21,439***	***22,729***
Reserve (Shortage)	**220**	**0**	**0**	**0**	**0**	**0**

Table C-126
Forest Hill

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**12,000**	**13,090**	**14,210**	**15,392**	**16,738**	**17,574**
Projected Water Demand						
Municipal Demand	1,492	1,584	1,671	1,776	1,912	2,008
Total Projected Demand	***1,492***	***1,584***	***1,671***	***1,776***	***1,912***	***2,008***
Currently Available Water Supplies						
Fort Worth (TRWD)	1,478	1,454	1,303	1,199	1,130	1,035
Total Current Supplies	***1,478***	***1,454***	***1,303***	***1,199***	***1,130***	***1,035***
Need (Demand - Current Supply)	***14***	***130***	***368***	***577***	***782***	***973***
Water Management Strategies						
Water Conservation	14	56	81	94	109	121
Additional Water from Fort Worth	0	74	287	483	673	852
Total Water Management Strategies	***14***	***130***	***368***	***577***	***782***	***973***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-127
Forney

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (In-City Only)	**13,000**	**24,000**	**30,000**	**35,000**	**39,000**	**42,803**
Projected Water Demand						
Municipal Demand	2,097	4,033	4,973	5,763	6,422	7,048
Manufacturing and Customer Demand	10,637	12,671	13,371	14,149	15,109	16,309
Total Projected Demand	***12,734***	***16,704***	***18,344***	***19,912***	***21,531***	***23,357***
Currently Available Water Supplies						
Garland Reuse (for power plant)	8,979	8,979	8,979	8,979	8,979	8,979
North Texas Municipal Water District	3,717	6,367	6,692	7,007	7,265	7,729
Total Current Supplies	***12,696***	***15,346***	***15,671***	***15,986***	***16,244***	***16,708***
Need (Demand - Current Supply)	***38***	***1,358***	***2,673***	***3,926***	***5,287***	***6,649***
Water Management Strategies						
Water Conservation	38	316	498	671	867	1,100
Additional Water from NTMWD		1,042	2,175	3,255	4,420	5,549
Total Water Management Strategies	***38***	***1,358***	***2,673***	***3,926***	***5,287***	***6,649***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See appendix H for details on customer demands.

Table C-128
Forney Lake Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,300**	**7,875**	**9,844**	**12,305**	**15,381**	**19,226**
Projected Water Demand						
Municipal Demand	1,376	1,694	2,096	2,592	3,222	4,028
Total Projected Demand	***1,376***	***1,694***	***2,096***	***2,592***	***3,222***	***4,028***
Currently Available Water Supplies						
North Texas Municipal Water District	1,359	1,379	1,482	1,646	1,850	2,150
Total Current Supplies	***1,359***	***1,379***	***1,482***	***1,646***	***1,850***	***2,150***
Need (Demand - Current Supply)	***17***	***315***	***614***	***946***	***1,372***	***1,878***
Water Management Strategies						
Water Conservation	17	86	134	190	264	363
Additional Water from NTMWD	0	229	480	756	1,108	1,515
Total Water Management Strategies	***17***	***315***	***614***	***946***	***1,372***	***1,878***
Region C Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-129
Fort Worth

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**742,597**	**950,587**	**1,181,683**	**1,454,650**	**1,773,210**	**2,161,533**
Projected Water Demand						
Municipal Demand	175,513	220,412	271,349	330,773	401,222	489,088
Manufacturing and Customer Demand	81,219	94,463	106,023	113,915	122,251	129,588
Total Projected Demand	***256,732***	***314,875***	***377,372***	***444,688***	***523,473***	***618,676***
Currently Available Water Supplies						
Tarrant Regional Water District (limited by treatment plant capacity)	247,979	277,748	277,748	277,748	277,748	277,748
Direct Reuse (Village Creek)	897	897	897	897	897	897
Total Current Supplies	***248,876***	***278,645***	***278,645***	***278,645***	***278,645***	***278,645***
Need (Demand - Current Supply)	***7,856***	***36,230***	***98,727***	***166,043***	***244,828***	***340,031***
Water Management Strategies						
Water Conservation	6,304	14,421	22,327	30,205	39,662	51,775
Village Creek Direct Reuse	1,552	3,469	3,526	3,526	3,526	3,526
Fort Worth Future Reuse	0	0	3,460	7,979	7,979	7,979
Alliance Direct Reuse	0	1,120	4,694	4,694	4,694	4,694
12 mgd West Plant		6,726	6,726	6,726	6,726	6,726
Rolling Hills 50 mgd expansion		10,494	28,025	28,025	28,025	28,025
New 25 mgd Southwest Plant		0	14,013	14,013	14,013	14,013
Eagle Mountain 35 mgd exp.		0	15,956	19,618	19,618	19,618
West Plant 23 mgd expansion			0	12,065	12,892	12,892
West Plant 35 mgd expansion			0	19,618	19,618	19,618
Eagle Mountain 70 mgd exp.				19,574	39,235	39,235
Southwest Plant 25 mgd exp.					14,013	14,013
50 mgd expansion					28,025	28,025
50 mgd expansion					6,802	28,025
50 mgd expansion						28,025
50 mgd expansion						28,025
50 mgd expansion						5,817
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***7,856***	***36,230***	***98,727***	***166,043***	***244,828***	***340,031***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See appendix H for details on customer demands.

Table C-130
Freestone County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**8**	**8**	**8**	**8**	**8**	**8**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	38	38	38	38	38	38
Local Supplies	87	87	87	87	87	87
Total Current Supplies	***125***	***125***	***125***	***125***	***125***	***125***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**117**	**117**	**117**	**117**	**117**	**117**

Table C-131
Freestone County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,528**	**1,528**	**1,528**	**1,528**	**1,528**	**1,528**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	669	669	669	669	669	669
Other Aquifer	50	50	50	50	50	50
Queen City Aquifer	40	40	40	40	40	40
Local Supplies	1,043	1,043	1,043	1,043	1,043	1,043
Total Current Supplies	***1,802***	***1,802***	***1,802***	***1,802***	***1,802***	***1,802***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**274**	**274**	**274**	**274**	**274**	**274**

Table C-132
Freestone County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
None	0	0	0	0	0	0
Total Current Supplies	***0***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-133
Freestone County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**116**	**126**	**132**	**138**	**144**	**149**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	80	80	80	80	80	80
Local Supplies	120	120	120	120	120	120
Total Current Supplies	***200***	***200***	***200***	***200***	***200***	***200***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**84**	**74**	**68**	**62**	**56**	**51**

Table C-134
Freestone County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**9,298**	**9,717**	**9,935**	**9,998**	**9,998**	**9,998**
Projected Water Demand						
Municipal Demand	1,251	1,271	1,265	1,240	1,229	1,229
Total Projected Water Demand	***1,251***	***1,271***	***1,265***	***1,240***	***1,229***	***1,229***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	1,380	1,380	1,380	1,380	1,380	1,380
Run-of-River local supply	41	41	41	41	41	41
Tarrant Regional Water District	271	316	302	270	236	206
Total Current Supplies	***1,692***	***1,737***	***1,723***	***1,691***	***1,657***	***1,627***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	14	47	64	69	73	77
Additional Water from TRWD	0	55	53	48	43	38
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***14***	***102***	***117***	***117***	***116***	***115***
Reserve (Shortage)	**455**	**568**	**575**	**568**	**544**	**513**

Table C-135
Freestone County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**12,173**	**18,210**	**20,524**	**23,999**	**28,234**	**33,398**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	745	745	745	745	745	745
Lake Fairfield	870	870	870	870	870	870
Trinity River Authority (upstream diversion of Lake Livingston)	20,000	20,000	20,000	20,000	20,000	20,000
TRWD Sources	6,722	6,722	6,026	5,214	4,566	3,981
Total Current Supplies	***28,337***	***28,337***	***27,641***	***26,829***	***26,181***	***25,596***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***2,053***	***7,802***
Water Management Strategies						
Additional Water from TRWD (current contract)	4	4	700	1,512	2,160	2,745
Additional Water from TRWD (new contract through TRA)		1,000	1,000	1,000	1,000	1,000
Trinity River Authority Reuse	0	0	0	0	6,760	6,760
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***1,004***	***1,700***	***2,512***	***9,920***	***10,505***
Reserve (Shortage)	**16,168**	**11,131**	**8,817**	**5,342**	**7,867**	**2,703**

Table C-136
Frisco

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**108,671**	**148,000**	**197,000**	**246,000**	**280,000**	**280,000**
Projected Water Demand						
Municipal Demand	36,153	47,910	62,450	77,983	88,760	88,760
Total Projected Demand	***36,153***	***47,910***	***62,450***	***77,983***	***88,760***	***88,760***
Currently Available Water Supplies						
North Texas Municipal Water District	35,415	37,171	41,771	45,941	47,733	44,363
Total Current Supplies	***35,415***	***37,171***	***41,771***	***45,941***	***47,733***	***44,363***
Need (Demand - Current Supply)	***738***	***10,739***	***20,679***	***32,042***	***41,027***	***44,397***
Water Management Strategies						
Water Conservation	738	4,062	8,744	11,587	13,938	14,693
Additional Water from NTMWD	0	4,437	8,575	14,805	21,439	24,054
Direct Reuse	0	2,240	3,360	5,650	5,650	5,650
Total Water Management Strategies	***738***	***10,739***	***20,679***	***32,042***	***41,027***	***44,397***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-137
Frost

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**550**	**550**	**550**	**550**	**550**	**550**
Projected Water Demand						
Municipal Demand	69	67	66	63	63	63
Total Projected Demand	***69***	***67***	***66***	***63***	***63***	***63***
Currently Available Water Supplies						
Corsicana	69	67	62	57	55	52
Woodbine Aquifer	56	56	56	56	56	56
Total Current Supplies	***125***	***123***	***118***	***113***	***111***	***108***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	3	4	4	4	4
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***3***	***4***	***4***	***4***	***4***
Reserve (Shortage)	**57**	**59**	**56**	**54**	**52**	**49**

Table C-138
Gainesville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**16,800**	**19,000**	**21,400**	**23,900**	**26,400**	**29,000**
Projected Water Demand						
Municipal Demand	3,387	3,746	4,171	4,578	5,027	5,522
Manufacturing and Customers	232	1,075	1,365	1,705	2,353	2,864
Total Projected Demand	***3,619***	***4,821***	***5,536***	***6,283***	***7,380***	***8,386***
Currently Available Water Supplies						
Moss Lake (limited by WTP capacity)	1,120	1,120	1,120	1,120	1,120	1,120
Direct Reuse	9	9	9	9	9	9
Trinity Aquifer	2,360	2,360	2,360	2,360	2,360	2,360
Total Current Supplies	***3,489***	***3,489***	***3,489***	***3,489***	***3,489***	***3,489***
Need (Demand - Current Supply)	***130***	***1,332***	***2,047***	***2,794***	***3,891***	***4,897***
Water Management Strategies						
Water Conservation	27	95	238	307	379	463
Overdraft Trinity Aquifer (existing wells)	103	0	0	0	0	0
Cooke County WSP - Moss Lake raw water and 4 MGD WTP expansion		2,240	2,240	2,240	2,240	2,240
Cooke Co. WSP - 2 MGD WTP Expansion				1,120	1,120	1,120
Cooke Co. WSP - 2 MGD WTP Expansion					1,120	1,120
Additional Direct Reuse	0	169	137	141	144	147
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***130***	***2,504***	***2,615***	***3,808***	***5,003***	***5,090***
Reserve (Shortage)	**0**	**1,172**	**568**	**1,014**	**1,112**	**193**

Note: See Appendix H for details on customer demands.

Table C-139
Garland

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (In City Only)	**232,685**	**234,650**	**241,767**	**243,000**	**243,000**	**243,000**
Projected Water Demand						
In-City Municipal Demand	42,484	42,055	42,789	42,462	42,190	42,190
Manufacturing and Customers	3,908	4,202	4,941	5,419	6,043	6,468
Total Projected Demand	***46,392***	***46,257***	***47,730***	***47,881***	***48,233***	***48,658***
Currently Available Water Supplies						
North Texas Municipal Water District	45,634	37,649	33,741	30,411	27,702	25,973
Total Current Supplies	***45,634***	***37,649***	***33,741***	***30,411***	***27,702***	***25,973***
Need (Demand - Current Supply)	***758***	***8,608***	***13,989***	***17,470***	***20,531***	***22,685***
Water Management Strategies						
Water Conservation	758	2,819	4,057	4,495	4,833	5,188
Additional Water from NTMWD		5,789	9,932	12,975	15,698	17,497
Total Water Management Strategies	***758***	***8,608***	***13,989***	***17,470***	***20,531***	***22,685***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**
Reuse Demand (Kaufman Co)	8,979	8,979	8,979	8,979	8,979	8,979
Reuse Supply	8,979	8,979	8,979	8,979	8,979	8,979
Reuse Need (Demand-Supply)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Appendix H for details on customer demands.

Table C-140
Gastonia-Scurry Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population						
Outside of Scurry	7,322	9,211	10,730	13,054	15,944	19,541
Scurry	678	789	918	1,068	1,242	1,445
Total Population Served	**8,000**	**10,000**	**11,648**	**14,122**	**17,186**	**20,986**
Projected Water Demand						
Municipal Demand (Outside of Scurry)	771	1,104	1,262	1,506	1,840	2,255
Demand in Scurry	87	102	118	138	160	186
Total Projected Demand	***858***	***1,206***	***1,380***	***1,644***	***2,000***	***2,441***
Currently Available Water Supplies						
North Texas Municipal Water District	844	982	976	1,045	1,149	1,303
Total Current Supplies	***844***	***982***	***976***	***1,045***	***1,149***	***1,303***
Need (Demand - Current Supply)	***14***	***224***	***404***	***599***	***851***	***1,138***
Water Management Strategies						
Water Conservation	14	51	74	96	123	158
Additional Water from NTMWD	0	173	330	503	728	980
Total Water Management Strategies	***14***	***224***	***404***	***599***	***851***	***1,138***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-141
Glenn Heights

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**11,423**	**13,833**	**16,516**	**19,102**	**21,705**	**24,332**
Projected Water Demand						
Municipal Demand	1,407	1,674	1,961	2,247	2,528	2,834
Customer Demand (Oak Leaf)	260	254	282	302	318	320
Total Projected Demand	***1,667***	***1,928***	***2,243***	***2,549***	***2,846***	***3,154***
Currently Available Water Supplies						
Trinity Aquifer	229	229	229	229	229	229
Dallas Water Utilities	1,222	1,305	1,453	1,571	1,633	1,632
Total Current Supplies	***1,451***	***1,534***	***1,682***	***1,800***	***1,862***	***1,861***
Need (Demand - Current Supply)	***216***	***394***	***561***	***749***	***984***	***1,293***
Water Management Strategies						
Water Conservation	21	71	107	132	158	186
Additional Water from DWU	195	323	454	617	826	1,107
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***216***	***394***	***561***	***749***	***984***	***1,293***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-142
Grand Prairie

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**170,000**	**196,000**	**231,011**	**260,015**	**290,520**	**290,520**
Projected Water Demand						
Municipal Demand	29,134	33,266	38,426	43,251	48,325	48,325
Irrigation (raw water)	300	300	300	300	300	300
Johnson County Special Utility District	0	6,726	6,726	6,726	6,726	6,726
Total Projected Demand	***29,434***	***40,292***	***45,452***	***50,277***	***55,351***	***55,351***
Currently Available Water Supplies						
Trinity Aquifer	4,200	4,200	4,200	4,200	4,200	4,200
Joe Pool Lake (raw water)	300	300	300	300	300	300
Fort Worth (TRWD)	1,065	1,029	874	757	662	578
Dallas Water Utilities	21,897	12,147	15,303	17,615	19,404	17,062
Total Current Supplies	***27,462***	***17,676***	***20,677***	***22,872***	***24,566***	***22,140***
Need (Demand - Current Supply)	***1,972***	***22,616***	***24,775***	***27,405***	***30,785***	***33,211***
Water Management Strategies						
Water Conservation	1,242	3,030	4,060	4,960	5,956	6,366
Additional Water from DWU	674	996	1,971	3,583	5,873	7,804
Additional Water from Fort Worth	56	93	247	365	459	544
Midlothian (Grand Prairie Joe Pool)	0	1,272	1,239	1,207	1,174	1,141
Midlothian (TRWD)	0	6,015	6,048	6,080	6,113	6,146
Mansfield (TRWD)	0	6,726	6,726	6,726	6,726	6,726
Arlington (TRWD)	0	4,484	4,484	4,484	4,484	4,484
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1,972***	***22,616***	***24,775***	***27,405***	***30,785***	***33,211***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-143
Grapevine

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**51,352**	**55,000**	**60,000**	**60,000**	**60,000**	**60,000**
Projected Water Demand						
Municipal Demand	17,256	18,298	19,827	19,692	19,625	19,625
Golf Course (Tarrant County Irrigation)	1,121	1,121	1,121	1,121	1,121	1,121
Total Projected Demand	***18,377***	***19,419***	***20,948***	***20,813***	***20,746***	***20,746***
Currently Available Water Supplies						
Dallas Water Utilities	3,553	2,677	2,532	2,123	1,794	1,473
Indirect Reuse	3,317	3,696	3,964	4,142	4,276	4,386
Trinity River Authority (TRWD)	9,551	9,838	9,490	8,331	7,388	6,526
Lake Grapevine	2,017	1,983	1,950	1,917	1,883	1,850
Total Current Supplies	***18,438***	***18,194***	***17,936***	***16,513***	***15,341***	***14,235***
Need (Demand - Current Supply)	***0***	***1,225***	***3,012***	***4,300***	***5,405***	***6,511***
Water Management Strategies						
Water Conservation	633	1,193	1,753	1,930	2,089	2,252
Additional Water from TRA	0	32	1,259	2,370	3,316	4,259
Total Water Management Strategies	***633***	***1,225***	***3,012***	***4,300***	***5,405***	***6,511***
Reserve (Shortage)	**694**	**0**	**0**	**0**	**0**	**0**

Table C-144
Grayson County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**3,561**	**3,751**	**3,950**	**4,158**	**4,381**	**4,616**
Currently Available Water Supplies						
Woodbine Aquifer	2,347	2,347	2,347	2,347	2,347	2,347
Red River Authority (Lake Texoma)	150	150	150	150	150	150
Local Supplies	2,394	2,394	2,394	2,394	2,394	2,394
Total Current Supplies	***4,891***	***4,891***	***4,891***	***4,891***	***4,891***	***4,891***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**1,330**	**1,140**	**941**	**733**	**510**	**275**

Table C-145
Grayson County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,297**	**1,297**	**1,297**	**1,297**	**1,297**	**1,297**
Currently Available Water Supplies						
Woodbine Aquifer	360	360	360	360	360	360
Local Supplies	1,683	1,683	1,683	1,683	1,683	1,683
Total Current Supplies	***2,043***	***2,043***	***2,043***	***2,043***	***2,043***	***2,043***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**746**	**746**	**746**	**746**	**746**	**746**

Table C-146
Grayson County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**7,010**	**7,781**	**8,453**	**9,088**	**9,621**	**10,444**
Currently Available Water Supplies						
Sherman (GTUA - Lake Texoma)	5,225	3,914	3,284	2,851	2,460	2,163
Denison (Lake Randell)	500	500	500	500	500	500
Howe (NTMWD through GTUA))	68	49	33	25	20	17
Woodbine Aquifer	1,215	1,215	1,215	1,215	1,215	1,215
Local Supplies	30	30	30	30	30	30
Total Current Supplies	***7,038***	***5,708***	***5,062***	***4,621***	***4,225***	***3,925***
Need (Demand - Current Supply)	***0***	***2,073***	***3,391***	***4,467***	***5,396***	***6,519***
Water Management Strategies						
Water Conservation	0	15	175	255	272	291
Additional Howe	0	15	25	33	41	48
Additional Denison	46	109	145	188	241	315
Additional Sherman (Grayson County Water Supply Project)	0	1,935	3,194	4,213	5,079	6,117
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***46***	***2,074***	***3,539***	***4,689***	***5,633***	***6,771***
Reserve (Shortage)	**74**	**1**	**148**	**222**	**237**	**252**

Table C-147
Grayson County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,052**	**1,050**	**1,049**	**1,048**	**1,047**	**1,046**
Currently Available Water Supplies						
Trinity Aquifer	595	595	595	595	595	595
Woodbine Aquifer	559	559	559	559	559	559
Total Current Supplies	***1,154***	***1,154***	***1,154***	***1,154***	***1,154***	***1,154***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**102**	**104**	**105**	**106**	**107**	**108**

Table C-148
Grayson County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**26,925**	**26,799**	**26,482**	**25,160**	**23,185**	**20,727**
Projected Water Demand						
Municipal Demand	3,468	3,393	3,263	3,016	2,753	2,461
Total Projected Water Demand	***3,468***	***3,393***	***3,263***	***3,016***	***2,753***	***2,461***
Currently Available Water Supplies						
Denison (Lake Randell)	60	60	60	60	60	60
Red River Authority (Lake Texoma)	641	641	641	641	641	641
Denison (Lake Texoma)	250	250	250	250	250	250
Sherman (GTUA - Lake Texoma)	76	67	51	81	98	157
Other Aquifer	35	35	35	35	35	35
Trinity Aquifer	1,170	1,170	1,170	1,170	1,170	1,170
Woodbine Aquifer	1,659	1,659	1,659	1,659	1,659	1,659
Total Current Supplies	***3,891***	***3,882***	***3,866***	***3,896***	***3,913***	***3,972***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	37	123	165	168	164	155
Grayson County Water Supply Project (Sherman WTP)	75	100	100	200	300	600
Grayson County Water Supply Project (North WTP)	0	200	300	400	500	600
Grayson County Water Supply Project (Northwest WTP)	0	560	560	560	560	560
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***112***	***983***	***1,125***	***1,328***	***1,524***	***1,915***
Reserve (Shortage)	**535**	**1,472**	**1,728**	**2,208**	**2,684**	**3,426**

Table C-149
Grayson County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**5,600**	**8,963**	**12,326**	**12,326**	**12,326**	**12,326**
Currently Available Water Supplies						
Sherman (GTUA - Lake Texoma)	5,600	5,600	5,600	5,600	5,600	5,600
Total Current Supplies	***5,600***	***5,600***	***5,600***	***5,600***	***5,600***	***5,600***
Need (Demand - Current Supply)	***0***	***3,363***	***6,726***	***6,726***	***6,726***	***6,726***
Water Management Strategies						
GTUA (Lake Texoma)	0	6,726	6,726	6,726	6,726	6,726
Total Water Management Strategies	***0***	***6,726***	***6,726***	***6,726***	***6,726***	***6,726***
Reserve (Shortage)	**0**	**3,363**	**0**	**0**	**0**	**0**

Table C-150
Gun Barrel City

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**6,131**	**7,201**	**8,256**	**9,338**	**10,658**	**12,324**
Projected Water Demand						
Municipal Demand	1,408	1,629	1,840	2,071	2,352	2,720
Total Projected Demand	***1,408***	***1,629***	***1,840***	***2,071***	***2,352***	***2,720***
Currently Available Water Supplies						
Mabank (TRWD)	704	0	0	0	0	0
East Cedar Creek Freshwater Supply District (TRWD)	693	896	861	839	834	841
Total Current Supplies	***1,397***	***896***	***861***	***839***	***834***	***841***
Need (Demand - Current Supply)	***11***	***733***	***979***	***1,232***	***1,518***	***1,879***
Water Management Strategies						
Water Conservation	11	72	105	136	174	224
Additional East Cedar Creek FWSD	0	23	139	269	404	568
TRWD and Water Treatment Plant	0	638	735	827	940	1,087
Total Water Management Strategies	***11***	***733***	***979***	***1,232***	***1,518***	***1,879***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-151
Gunter

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**2,000**	**3,500**	**5,000**	**6,500**	**8,000**	**9,000**
Projected Water Demand						
Municipal Demand	271	467	655	837	1,022	1,149
Total Projected Demand	***271***	***467***	***655***	***837***	***1,022***	***1,149***
Currently Available Water Supplies						
Trinity Aquifer	298	298	298	298	298	298
Total Current Supplies	***298***	***298***	***298***	***298***	***298***	***298***
Need (Demand - Current Supply)	***0***	***169***	***357***	***539***	***724***	***851***
Water Management Strategies						
Water Conservation	5	19	32	44	57	68
Grayson County Water Supply Project (Sherman WTP)	0	180	350	530	700	820
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***199***	***382***	***574***	***757***	***888***
Reserve (Shortage)	**32**	**30**	**25**	**35**	**33**	**37**

Table C-152
Hackberry

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**1,086**	**1,619**	**2,120**	**2,361**	**2,477**	**2,533**
Projected Water Demand						
Municipal Demand	142	210	275	304	319	326
Total Projected Demand	***142***	***210***	***275***	***304***	***319***	***326***
Currently Available Water Supplies						
North Texas Municipal Water District	67	112	143	147	141	135
Trinity Aquifer	73	73	73	73	73	73
Total Current Supplies	***140***	***185***	***216***	***220***	***214***	***208***
Need (Demand - Current Supply)	***2***	***25***	***59***	***84***	***105***	***118***
Water Management Strategies						
Water Conservation	2	9	14	17	19	20
Additional Water from NTMWD	0	16	45	67	86	98
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***25***	***59***	***84***	***105***	***118***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-153
Haltom City

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**41,000**	**50,322**	**53,058**	**54,428**	**55,113**	**55,456**
Projected Water Demand						
Municipal Demand	6,521	7,835	8,142	8,231	8,272	8,324
Total Projected Demand	***6,521***	***7,835***	***8,142***	***8,231***	***8,272***	***8,324***
Currently Available Water Supplies						
Fort Worth (TRWD)	6,465	7,192	6,350	5,555	4,888	4,289
Total Current Supplies	***6,465***	***7,192***	***6,350***	***5,555***	***4,888***	***4,289***
Need (Demand - Current Supply)	***56***	***643***	***1,792***	***2,676***	***3,384***	***4,035***
Water Management Strategies						
Water Conservation	56	221	303	340	371	401
Additional Water from Fort Worth	0	422	1,489	2,336	3,013	3,634
Total Water Management Strategies	***56***	***643***	***1,792***	***2,676***	***3,384***	***4,035***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-154
Haslet

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**2,000**	**4,000**	**7,000**	**7,000**	**7,000**	**7,000**
Projected Water Demand						
Municipal Demand	784	1,555	2,697	2,689	2,682	2,682
Total Projected Demand	***784***	***1,555***	***2,697***	***2,689***	***2,682***	***2,682***
Currently Available Water Supplies						
Fort Worth (TRWD)	657	1,316	2,009	1,733	1,513	1,320
Trinity Aquifer	121	121	121	121	121	121
Total Current Supplies	***778***	***1,437***	***2,130***	***1,854***	***1,634***	***1,441***
Need (Demand - Current Supply)	***6***	***118***	***567***	***835***	***1,048***	***1,241***
Water Management Strategies						
Water Conservation	6	60	131	154	176	198
Additional Water from Fort Worth	0	58	436	681	872	1,043
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***118***	***567***	***835***	***1,048***	***1,241***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-155
Heath

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,971**	**9,857**	**12,362**	**15,058**	**18,238**	**21,968**
Projected Water Demand						
Municipal Demand	1,952	2,727	3,393	4,116	4,964	5,980
Total Projected Demand	***1,952***	***2,727***	***3,393***	***4,116***	***4,964***	***5,980***
Currently Available Water Supplies						
North Texas Municipal Water District	1,936	2,220	2,399	2,614	2,851	3,192
Total Current Supplies	***1,936***	***2,220***	***2,399***	***2,614***	***2,851***	***3,192***
Need (Demand - Current Supply)	***16***	***507***	***994***	***1,502***	***2,113***	***2,788***
Water Management Strategies						
Water Conservation	16	114	181	255	350	471
Additional Water from NTMWD	0	393	813	1,247	1,763	2,317
Total Water Management Strategies	***16***	***507***	***994***	***1,502***	***2,113***	***2,788***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-156
Hebron

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**500**	**500**	**500**	**500**	**500**	**500**
Projected Water Demand						
Municipal Demand	114	111	110	109	109	109
Total Projected Demand	***114***	***111***	***110***	***109***	***109***	***109***
Currently Available Water Supplies						
Carrollton (DWU)	105	83	79	73	68	60
Total Current Supplies	***105***	***83***	***79***	***73***	***68***	***60***
Need (Demand - Current Supply)	***9***	***28***	***31***	***36***	***41***	***49***
Water Management Strategies						
Water Conservation	0	5	6	7	8	9
Additional Water from Carrollton	9	23	25	29	33	40
Total Water Management Strategies	***9***	***28***	***31***	***36***	***41***	***49***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-157
Henderson County Irrigation (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand in Region C	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	25	25	25	25	25	25
Direct reuse	32	32	32	32	32	32
Local supplies	415	415	415	415	415	415
Total Current Supplies	***472***	***472***	***472***	***472***	***472***	***472***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**472**	**472**	**472**	**472**	**472**	**472**

Table C-158
Henderson County Livestock (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand in Region C	**854**	**854**	**854**	**854**	**854**	**854**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	518	518	518	518	518	518
Other Aquifer	126	126	126	126	126	126
Queen City Aquifer	43	43	43	43	43	43
Local Supplies	341	341	341	341	341	341
Total Current Supplies	***1,028***	***1,028***	***1,028***	***1,028***	***1,028***	***1,028***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**174**	**174**	**174**	**174**	**174**	**174**

Table C-159
Henderson County Manufacturing (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand in Region C	**110**	**118**	**133**	**151**	**172**	**195**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	408	408	408	408	408	408
Athens (Athens MWA and Groundwater)	99	72	71	70	69	67
Total Current Supplies	***507***	***480***	***479***	***478***	***477***	***475***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	0	0	3	4	5	5
Additional Water from Athens (Athens MWA)	0	34	49	66	86	109
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***34***	***52***	***70***	***91***	***114***
Reserve (Shortage)	**397**	**396**	**398**	**397**	**396**	**394**

Table C-160
Henderson County Mining (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Water Demand in Region C	**265**	**302**	**327**	**352**	**378**	**399**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	439	439	439	439	439	439
Tarrant Regional Water District	79	83	76	72	67	62
Total Current Supplies	***518***	***522***	***515***	***511***	***506***	***501***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**253**	**220**	**188**	**159**	**128**	**102**

Table C-161
Henderson County Other (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population in Region C	**1,328**	**1,327**	**1,326**	**1,326**	**1,325**	**1,324**
Projected Water Demand in Region C						
Municipal Demand	262	257	253	248	246	246
Total Projected Water Demand	***262***	***257***	***253***	***248***	***246***	***246***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	290	290	290	290	290	290
Other Aquifer	41	41	41	41	41	41
Tarrant Regional Water District	78	71	59	50	44	38
Total Current Supplies	***409***	***402***	***390***	***381***	***375***	***369***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	7	9	10	11	12
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***7***	***9***	***10***	***11***	***12***
Reserve (Shortage)	**149**	**152**	**146**	**143**	**140**	**135**

Table C-162
Henderson County Steam Electric Power (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Water Demand in Region C	**460**	**427**	**7,000**	**8,000**	**9,000**	**10,000**
Currently Available Water Supplies						
Lake Trinidad	3,050	3,050	3,050	3,050	3,050	3,050
Total Current Supplies	***3,050***	***3,050***	***3,050***	***3,050***	***3,050***	***3,050***
Need (Demand - Current Supply)	***0***	***0***	***3,950***	***4,950***	***5,950***	***6,950***
Water Management Strategies						
Tarrant Regional Water District	0	0	3,950	4,950	5,950	6,950
Total Water Management Strategies	***0***	***0***	***3,950***	***4,950***	***5,950***	***6,950***
Reserve (Shortage)	**2,590**	**2,623**	**0**	**0**	**0**	**0**

Table C-163
Hickory Creek

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,150**	**5,600**	**6,500**	**7,941**	**7,941**	**7,941**
Projected Water Demand						
Municipal Demand	753	1,004	1,158	1,405	1,405	1,405
Total Projected Demand	***753***	***1,004***	***1,158***	***1,405***	***1,405***	***1,405***
Currently Available Water Supplies						
Lake Cities Municipal Utility Authority (UTRWD and Groundwater)	786	477	397	370	308	269
Total Current Supplies	***786***	***477***	***397***	***370***	***308***	***269***
Need (Demand - Current Supply)	***0***	***527***	***761***	***1,035***	***1,097***	***1,136***
Water Management Strategies						
Water Conservation	24	57	80	110	122	133
Additional Water from Lake Cities MUA	0	470	681	925	975	1,003
Total Water Management Strategies	***24***	***527***	***761***	***1,035***	***1,097***	***1,136***
Reserve (Shortage)	**57**	**0**	**0**	**0**	**0**	**0**

Table C-164
Hickory Creek Special Utility District (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**244**	**285**	**319**	**349**	**380**	**415**
Projected Water Demand in Region C						
Municipal Demand	42	48	53	56	61	67
Total Projected Region C Demand	***42***	***48***	***53***	***56***	***61***	***67***
Currently Available Water Supplies						
Woodbine Aquifer in Region D	40	45	49	51	55	60
Total Current Supplies	***40***	***45***	***49***	***51***	***55***	***60***
Need (Demand - Current Supply)	***2***	***3***	***4***	***5***	***6***	***7***
Water Management Strategies						
Water Conservation	2	3	4	5	6	7
Total Water Management Strategies	***2***	***3***	***4***	***5***	***6***	***7***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-165
High Point Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,400**	**4,313**	**5,232**	**6,248**	**7,499**	**9,042**
Projected Water Demand						
Municipal Demand	362	517	616	728	865	1,044
Total Projected Demand	***362***	***517***	***616***	***728***	***865***	***1,044***
Currently Available Water Supplies						
Forney (NTMWD)	179	210	218	231	248	279
Terrell (NTMWD)	179	210	218	231	248	279
Total Current Supplies	***358***	***420***	***436***	***462***	***496***	***558***
Need (Demand - Current Supply)	***4***	***97***	***180***	***266***	***369***	***486***
Water Management Strategies						
Water Conservation	4	21	33	42	53	68
Additional Water from Forney	0	38	74	112	158	209
Additional Water from Terrell	0	38	73	112	158	209
Total Water Management Strategies	***4***	***97***	***180***	***266***	***369***	***486***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-166
Highland Park

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,937**	**9,025**	**9,106**	**9,181**	**9,249**	**9,313**
Projected Water Demand						
Municipal Demand	4,255	4,266	4,274	4,278	4,289	4,319
Total Projected Demand	***4,255***	***4,266***	***4,274***	***4,278***	***4,289***	***4,319***
Currently Available Water Supplies						
Dallas County Park Cities Municipal Utility District (Lake Grapevine)	4,233	4,205	4,188	4,176	4,172	4,187
Total Current Supplies	***4,233***	***4,205***	***4,188***	***4,176***	***4,172***	***4,187***
Need (Demand - Current Supply)	***22***	***61***	***86***	***102***	***117***	***132***
Water Management Strategies						
Water Conservation	22	61	86	102	117	132
Total Water Management Strategies	***22***	***61***	***86***	***102***	***117***	***132***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-167
Highland Village

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**15,148**	**16,868**	**17,862**	**18,000**	**18,000**	**18,000**
Projected Water Demand						
Municipal Demand	3,733	4,100	4,302	4,295	4,274	4,274
Total Projected Demand	***3,733***	***4,100***	***4,302***	***4,295***	***4,274***	***4,274***
Currently Available Water Supplies						
Trinity Aquifer	1,411	1,411	1,411	1,411	1,411	1,411
Upper Trinity Regional Water District	2,568	1,073	804	644	530	480
Total Current Supplies	***3,979***	***2,484***	***2,215***	***2,055***	***1,941***	***1,891***
Need (Demand - Current Supply)	***0***	***1,616***	***2,087***	***2,240***	***2,333***	***2,383***
Water Management Strategies						
Water Conservation	78	150	329	402	436	472
Additional Water from UTRWD	0	1,775	2,177	2,367	2,537	2,661
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***78***	***1,925***	***2,506***	***2,769***	***2,973***	***3,133***
Reserve (Shortage)	**324**	**309**	**419**	**529**	**640**	**750**

Table C-168
Honey Grove

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,858**	**2,100**	**2,500**	**3,000**	**3,500**	**4,000**
Projected Water Demand						
Municipal Demand	421	466	546	645	749	856
Total Projected Demand	***421***	***466***	***546***	***645***	***749***	***856***
Currently Available Water Supplies						
Woodbine Aquifer	463	463	463	463	463	463
Total Current Supplies	***463***	***463***	***463***	***463***	***463***	***463***
Need (Demand - Current Supply)	***0***	***3***	***83***	***182***	***286***	***393***
Water Management Strategies						
Water Conservation	3	31	69	88	108	131
Fannin County Water Supply Project	0	65	123	223	328	433
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***96***	***192***	***311***	***436***	***564***
Reserve (Shortage)	**45**	**93**	**109**	**129**	**150**	**171**

Table C-169
Howe

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,000**	**4,500**	**6,500**	**8,500**	**9,772**	**10,781**
Projected Water Demand						
Municipal Demand	403	590	837	1,085	1,237	1,365
Grayson County Manufacturing	70	78	85	91	96	104
Total Projected Demand	***473***	***668***	***922***	***1,176***	***1,333***	***1,469***
Currently Available Water Supplies						
Woodbine Aquifer	301	301	301	301	301	301
North Texas Municipal WD (Collin-Grayson Municipal Alliance Pipeline)	215	215	215	215	215	215
Total Current Supplies	***516***	***516***	***516***	***516***	***516***	***516***
Need (Demand - Current Supply)	***0***	***152***	***406***	***660***	***817***	***953***
Water Management Strategies						
Water Conservation	9	27	47	65	79	91
Additional Water from NTMWD (Expanded CGMA Pipeline)	0	125	359	595	738	862
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***9***	***152***	***406***	***660***	***817***	***953***
Reserve (Shortage)	**52**	**0**	**0**	**0**	**0**	**0**

Table C-170
Hudson Oaks

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,000**	**2,438**	**2,972**	**3,500**	**4,000**	**4,500**
Projected Water Demand						
Municipal Demand	394	475	576	674	771	867
Total Projected Demand	***394***	***475***	***576***	***674***	***771***	***867***
Currently Available Water Supplies						
Trinity Aquifer	281	281	281	281	281	281
Weatherford (TRWD)	109	178	230	265	289	302
Total Current Supplies	***390***	***459***	***511***	***546***	***570***	***583***
Need (Demand - Current Supply)	***4***	***16***	***65***	***128***	***201***	***284***
Water Management Strategies						
Water Conservation	4	23	36	48	61	76
Additional Water from Weatherford	0	0	29	80	140	208
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***23***	***65***	***128***	***201***	***284***
Reserve (Shortage)	**0**	**7**	**0**	**0**	**0**	**0**

Table C-171
Hurst

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**38,829**	**41,000**	**41,000**	**41,000**	**41,000**	**41,000**
Projected Water Demand						
Municipal Demand	7,524	7,807	7,670	7,532	7,486	7,486
Total Projected Demand	***7,524***	***7,807***	***7,670***	***7,532***	***7,486***	***7,486***
Currently Available Water Supplies						
Trinity Aquifer	816	816	816	816	816	816
Fort Worth (TRWD)	6,652	6,417	5,346	4,533	3,941	3,437
Total Current Supplies	***7,468***	***7,233***	***6,162***	***5,349***	***4,757***	***4,253***
Need (Demand - Current Supply)	***56***	***574***	***1,508***	***2,183***	***2,729***	***3,233***
Water Management Strategies						
Water Conservation	56	426	603	670	729	792
Additional Water from Fort Worth	0	148	905	1,513	2,000	2,441
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***56***	***574***	***1,508***	***2,183***	***2,729***	***3,233***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-172
Hutchins

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,200**	**4,000**	**5,000**	**6,500**	**8,500**	**14,000**
Projected Water Demand						
Municipal Demand	821	1,008	1,255	1,624	2,123	3,497
Total Projected Demand	***821***	***1,008***	***1,255***	***1,624***	***2,123***	***3,497***
Currently Available Water Supplies						
Dallas Water Utilities	755	757	900	1,094	1,319	1,910
Total Current Supplies	***755***	***757***	***900***	***1,094***	***1,319***	***1,910***
Need (Demand - Current Supply)	***66***	***251***	***355***	***530***	***804***	***1,587***
Water Management Strategies						
Water Conservation	23	56	78	116	170	309
Additional Water from DWU	43	195	277	414	634	1,278
Total Water Management Strategies	***66***	***251***	***355***	***530***	***804***	***1,587***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-173
Irving

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**219,238**	**240,099**	**255,853**	**267,751**	**276,736**	**283,521**
Projected Water Demand						
Municipal Demand	58,202	66,967	70,502	73,780	76,256	78,126
Manufacturing Demand	2,047	2,267	2,469	2,653	2,802	2,819
Total Projected Demand	***60,249***	***69,234***	***72,971***	***76,433***	***79,058***	***80,945***
Currently Available Water Supplies						
Lake Chapman	44,484	44,484	44,484	44,484	44,484	44,484
Dallas Water Utilities	14,497	14,082	2,869	2,694	2,485	2,185
Total Current Supplies	***58,981***	***58,566***	***47,353***	***47,178***	***46,969***	***46,669***
Need (Demand - Current Supply)	***1,268***	***10,668***	***25,618***	***29,255***	***32,089***	***34,276***
Water Management Strategies						
Water Conservation	2,178	3,779	4,882	5,836	6,679	7,502
Chapman Booster Pump Station (with NTMWD)		0	0	0	0	0
Princeton Pump Station Expansion		0	0	0	0	0
Additional Water from DWU		889	1,131	1,306	1,515	1,815
Oklahoma			25,000	25,000	25,000	25,000
Direct Reuse		6,000	8,000	8,000	8,000	8,000
Total Water Management Strategies	***2,178***	***10,668***	***39,013***	***40,142***	***41,194***	***42,317***
Reserve (Shortage)	**910**	**0**	**13,395**	**10,887**	**9,105**	**8,041**

Table C-174
Italy

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,376**	**2,731**	**3,081**	**3,438**	**3,838**	**4,279**
Projected Water Demand						
Municipal Demand	282	330	362	397	439	489
Total Projected Demand	***282***	***330***	***362***	***397***	***439***	***489***
Currently Available Water Supplies						
Trinity Aquifer	208	208	208	208	208	208
Woodbine Aquifer	79	79	79	79	79	79
Total Current Supplies	***287***	***287***	***287***	***287***	***287***	***287***
Need (Demand - Current Supply)	***0***	***43***	***75***	***110***	***152***	***202***
Water Management Strategies						
Water Conservation	4	13	19	23	27	32
Waxahachie (TRWD through TRA)	0	30	56	87	125	170
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***43***	***75***	***110***	***152***	***202***
Reserve (Shortage)	**9**	**0**	**0**	**0**	**0**	**0**

Table C-175
Jack County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
Other Aquifer	25	25	25	25	25	25
Indirect Reuse	385	385	385	385	385	385
Direct reuse	27	27	26	26	25	25
Local supplies	110	110	110	110	110	110
Total Current Supplies	***547***	***547***	***546***	***546***	***545***	***545***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Jacksboro Indirect Reuse to Mining	-385	-385	-385	-385	-385	-385
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***-385***	***-385***	***-385***	***-385***	***-385***	***-385***
Reserve (Shortage)	**162**	**162**	**161**	**161**	**160**	**160**

Table C-176
Jack County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,025**	**1,025**	**1,025**	**1,025**	**1,025**	**1,025**
Currently Available Water Supplies						
Other Aquifer	135	135	135	135	135	135
Local Supplies	1,665	1,665	1,665	1,665	1,665	1,665
Total Current Supplies	***1,800***	***1,800***	***1,800***	***1,800***	***1,800***	***1,800***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**775**	**775**	**775**	**775**	**775**	**775**

Table C-177
Jack County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2**	**2**	**2**	**2**	**2**	**2**
Currently Available Water Supplies						
Jacksboro (Lost Creek/Jacksboro system)	2	2	2	2	2	2
Total Current Supplies	***2***	***2***	***2***	***2***	***2***	***2***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-178
Jack County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**993**	**983**	**973**	**973**	**973**	**973**
Currently Available Water Supplies						
Other Aquifer	284	284	284	284	284	284
Local Supplies	370	370	370	370	370	370
Total Current Supplies	***654***	***654***	***654***	***654***	***654***	***654***
Need (Demand - Current Supply)	***339***	***329***	***319***	***319***	***319***	***319***
Water Management Strategies						
Jacksboro Indirect Reuse to Mining	385	385	385	385	385	385
Jacksboro (Lost Creek/Jacksboro system)	11	11	11	11	11	11
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***396***	***396***	***396***	***396***	***396***	***396***
Reserve (Shortage)	**57**	**67**	**77**	**77**	**77**	**77**

Table C-179
Jack County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,375**	**4,918**	**5,448**	**5,948**	**6,448**	**6,948**
Projected Water Demand in Region C						
Municipal Demand	549	600	647	686	736	793
Total Projected Water Demand	***549***	***600***	***647***	***686***	***736***	***793***
Currently Available Water Supplies						
Jacksboro (Lost Creek/Jacksboro system)	5	5	5	5	5	5
Other Aquifer	415	415	415	415	415	415
Trinity Aquifer	100	100	100	100	100	100
Total Current Supplies	***520***	***520***	***520***	***520***	***520***	***520***
Need (Demand - Current Supply)	***29***	***80***	***127***	***166***	***216***	***273***
Water Management Strategies						
Water Conservation	7	23	33	39	44	50
Additional Water from Jacksboro	22	57	94	127	172	223
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***29***	***80***	***127***	***166***	***216***	***273***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-180
Jack County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,162**	**2,500**	**2,700**	**2,900**	**3,100**	**3,300**
Currently Available Water Supplies						
Tarrant Regional Water District	2,162	2,500	2,700	2,900	3,100	3,300
Total Current Supplies	***2,162***	***2,500***	***2,700***	***2,900***	***3,100***	***3,300***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-181
Jacksboro

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,650**	**4,798**	**4,897**	**4,897**	**4,897**	**4,897**
Projected Water Demand						
Municipal Demand	688	699	697	686	680	680
Customers and Manufacturing Demand	40	75	112	145	190	241
Total Projected Demand	***728***	***774***	***809***	***831***	***870***	***921***
Currently Available Water Supplies						
Lost Creek/Jacksboro system	991	991	991	991	991	991
Total Current Supplies	***991***	***991***	***991***	***991***	***991***	***991***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	6	19	26	28	30	33
Total Water Management Strategies	***6***	***19***	***26***	***28***	***30***	***33***
Reserve (Shortage)	**269**	**236**	**208**	**188**	**151**	**103**

Table C-182
Johnson County Special Utility District (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**2,406**	**3,015**	**3,638**	**4,294**	**5,076**	**5,994**
Projected Water Demand in Region C						
Municipal Demand	461	587	725	885	1,080	1,276
Total Projected Region C Demand	***461***	***587***	***725***	***885***	***1,080***	***1,276***
Currently Available Water Supplies						
Mansfield (TRWD)	1,675	3,087	5,246	4,539	3,974	3,466
Total Current Supplies	***1,675***	***3,087***	***5,246***	***4,539***	***3,974***	***3,466***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	7	23	30	39	50	63
Additional Supply from Mansfield	0	3,639	1,480	2,187	2,752	3,260
Grand Prairie (multiple sources)	0	6,726	6,726	6,726	6,726	6,726
Total Water Management Strategies	***7***	***10,388***	***8,236***	***8,952***	***9,528***	***10,049***
Available for Brazos G Region	**1,221**	**12,888**	**12,757**	**12,606**	**12,422**	**12,239**

Table C-183
Josephine (Region C and D)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**941**	**1,262**	**1,514**	**1,820**	**2,119**	**2,449**
Projected Water Demand						
Municipal Demand	259	346	415	499	580	668
Total Projected Demand	***259***	***346***	***415***	***499***	***580***	***668***
Currently Available Water Supplies						
North Texas Municipal Water District	257	282	293	317	333	357
Total Current Supplies	***257***	***282***	***293***	***317***	***333***	***357***
Need (Demand - Current Supply)	***2***	***64***	***122***	***182***	***247***	***311***
Water Management Strategies						
Water Conservation	2	15	22	31	41	52
Additional Water from NTMWD	0	49	100	151	206	259
Total Water Management Strategies	***2***	***64***	***122***	***182***	***247***	***311***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-184
Justin

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**3,177**	**5,252**	**8,474**	**13,926**	**17,000**	**18,759**
Projected Water Demand						
Municipal Demand	587	1,012	1,614	2,636	3,218	3,551
Total Projected Demand	***587***	***1,012***	***1,614***	***2,636***	***3,218***	***3,551***
Currently Available Water Supplies						
Upper Trinity Regional Water District	427	309	359	474	471	460
Trinity Aquifer	150	150	150	150	150	150
Total Current Supplies	***577***	***459***	***509***	***624***	***621***	***610***
Need (Demand - Current Supply)	***10***	***553***	***1,105***	***2,012***	***2,597***	***2,941***
Water Management Strategies						
Water Conservation	28	82	150	269	357	424
Additional Water from UTRWD	0	471	970	1,773	2,285	2,577
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***28***	***553***	***1,120***	***2,042***	***2,642***	***3,001***
Reserve (Shortage)	**18**	**0**	**15**	**30**	**45**	**60**

Table C-185
Kaufman

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population In City Only)	**8,256**	**10,864**	**13,020**	**14,753**	**16,484**	**19,883**
Projected Water Demand						
Municipal Demand	1,322	1,716	2,013	2,264	2,511	3,029
Customer Demand (Oak Grove)	124	148	172	201	236	283
Total Projected Demand	***1,446***	***1,864***	***2,185***	***2,465***	***2,747***	***3,312***
Currently Available Water Supplies						
North Texas Municipal Water District	1,419	1,517	1,545	1,566	1,578	1,768
Total Current Supplies	***1,419***	***1,517***	***1,545***	***1,566***	***1,578***	***1,768***
Need (Demand - Current Supply)	***27***	***347***	***640***	***899***	***1,169***	***1,544***
Water Management Strategies						
Water Conservation	35	138	128	158	189	240
Additional Water from NTMWD	0	209	512	741	980	1,304
Total Water Management Strategies	***35***	***347***	***640***	***899***	***1,169***	***1,544***
Reserve (Shortage)	**8**	**0**	**0**	**0**	**0**	**0**

Table C-186
Kaufman County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,916**	**2,916**	**2,916**	**2,916**	**2,916**	**2,916**
Currently Available Water Supplies						
Tarrant Regional WD (Cedar Creek)	100	92	78	67	59	52
Direct Reuse	576	758	758	758	758	758
North Texas Municipal Water District	1,984	1,469	1,276	1,146	1,037	963
Local Supplies	64	64	64	64	64	64
Nacatoch Aquifer	4	4	4	4	4	4
Trinity Aquifer	185	185	185	185	185	185
Total Current Supplies	***2,913***	***2,572***	***2,365***	***2,224***	***2,107***	***2,026***
Need (Demand - Current Supply)	***3***	***344***	***551***	***692***	***809***	***890***
Water Management Strategies						
Water Conservation	4	72	140	177	212	247
Additional Water from NTMWD	0	272	411	515	597	643
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***344***	***551***	***692***	***809***	***890***
Reserve (Shortage)	**1**	**0**	**0**	**0**	**0**	**0**

Table C-187
Kaufman County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,545**	**1,545**	**1,545**	**1,545**	**1,545**	**1,545**
Currently Available Water Supplies						
Nacatoch Aquifer	73	73	73	73	73	73
Woodbine Aquifer	200	200	200	200	200	200
Local Supplies	1,622	1,622	1,622	1,622	1,622	1,622
Total Current Supplies	***1,895***	***1,895***	***1,895***	***1,895***	***1,895***	***1,895***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**350**	**350**	**350**	**350**	**350**	**350**

Table C-188
Kaufman County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**760**	**813**	**869**	**928**	**993**	**1,061**
Currently Available Water Supplies						
North Texas Municipal Water District (through Terrell, Forney, and Kaufman)	760	662	615	590	570	567
Total Current Supplies	***760***	***662***	***615***	***590***	***570***	***567***
Need (Demand - Current Supply)	***0***	***151***	***254***	***338***	***423***	***494***
Water Management Strategies						
Water Conservation	0	1	15	22	23	25
Additional water from NTMWD	0	150	239	316	400	469
Total Water Management Strategies	***0***	***151***	***254***	***338***	***423***	***494***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-189
Kaufman County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**79**	**80**	**81**	**82**	**83**	**84**
Currently Available Water Supplies						
Local Supplies	86	86	86	86	86	86
Total Current Supplies	***86***	***86***	***86***	***86***	***86***	***86***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**7**	**6**	**5**	**4**	**3**	**2**

Table C-190
Kaufman County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**13,767**	**13,767**	**13,767**	**13,767**	**13,767**	**13,767**
Projected Water Demand						
Municipal Demand	2,082	2,066	2,051	2,036	2,020	2,020
Total Projected Water Demand	***2,082***	***2,066***	***2,051***	***2,036***	***2,020***	***2,020***
Currently Available Water Supplies						
Nacatoch Aquifer	241	241	241	241	241	241
North Texas Municipal Water District	1,437	1,177	1,015	905	812	755
Tarrant Regional Water District	411	379	320	275	239	208
Total Current Supplies	***2,089***	***1,797***	***1,576***	***1,421***	***1,292***	***1,204***
Need (Demand - Current Supply)	***0***	***269***	***475***	***615***	***728***	***816***
Water Management Strategies						
Water Conservation	25	68	91	99	105	112
Additional Water from NTMWD	0	215	347	441	519	569
Additional Water from TRWD	0	20	72	112	144	174
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***25***	***303***	***510***	***652***	***768***	***855***
Reserve (Shortage)	**32**	**34**	**35**	**37**	**40**	**39**

Table C-191
Kaufman County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**8,979**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**
Currently Available Water Supplies						
Reuse from Garland (through Forney)	8,979	8,979	8,979	8,979	8,979	8,979
Total Current Supplies	***8,979***	***8,979***	***8,979***	***8,979***	***8,979***	***8,979***
Need (Demand - Current Supply)	***0***	***1,021***	***1,021***	***1,021***	***1,021***	***1,021***
Water Management Strategies						
Forney (NTMWD)	0	1,121	1,121	1,121	1,121	1,121
Trinity River Authority Reuse	0	1,000	1,000	1,000	1,000	1,000
Total Water Management Strategies	***0***	***2,121***	***2,121***	***2,121***	***2,121***	***2,121***
Reserve (Shortage)	**0**	**1,100**	**1,100**	**1,100**	**1,100**	**1,100**

Table C-192
Keller

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**40,127**	**45,026**	**51,310**	**51,310**	**51,310**	**51,310**
Projected Water Demand						
Municipal Demand	9,124	10,138	11,495	11,380	11,380	11,380
Total Projected Demand	***9,124***	***10,138***	***11,495***	***11,380***	***11,380***	***11,380***
Currently Available Water Supplies						
Fort Worth (TRWD)	8,856	9,301	8,965	7,680	6,725	5,864
Trinity Aquifer	10	10	10	10	10	10
Total Current Supplies	***8,866***	***9,311***	***8,975***	***7,690***	***6,735***	***5,874***
Need (Demand - Current Supply)	***258***	***827***	***2,520***	***3,690***	***4,645***	***5,506***
Water Management Strategies						
Water Conservation	268	635	1,070	1,167	1,262	1,357
Additional Water from Fort Worth	0	192	1,450	2,523	3,383	4,149
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***268***	***827***	***2,520***	***3,690***	***4,645***	***5,506***
Reserve (Shortage)	**10**	**0**	**0**	**0**	**0**	**0**

Table C-193
Kemp

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,400**	**1,700**	**2,000**	**2,000**	**2,000**	**2,000**
Projected Water Demand						
Municipal Demand	224	267	307	300	296	296
Total Projected Demand	***224***	***267***	***307***	***300***	***296***	***296***
Currently Available Water Supplies						
Tarrant Regional Water District	222	245	239	202	175	152
Total Current Supplies	***222***	***245***	***239***	***202***	***175***	***152***
Need (Demand - Current Supply)	***2***	***22***	***68***	***98***	***121***	***144***
Water Management Strategies						
Water Conservation	2	9	14	15	16	17
Additional Water from TRWD	0	13	54	83	105	127
Total Water Management Strategies	***2***	***22***	***68***	***98***	***121***	***144***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-194
Kennedale

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,000**	**9,064**	**10,114**	**10,824**	**11,303**	**11,626**
Projected Water Demand						
Municipal Demand	1,255	1,594	1,756	1,867	1,937	1,992
Total Projected Demand	***1,255***	***1,594***	***1,756***	***1,867***	***1,937***	***1,992***
Currently Available Water Supplies						
Trinity Aquifer	953	953	953	953	953	953
Fort Worth (TRWD)	48	390	458	471	454	424
Total Current Supplies	***1,001***	***1,343***	***1,411***	***1,424***	***1,407***	***1,377***
Need (Demand - Current Supply)	***254***	***251***	***345***	***443***	***530***	***615***
Water Management Strategies						
Water Conservation	38	94	131	158	182	203
Additional Trinity Aquifer (new wells)	216	216	216	216	216	216
Additional Water from Fort Worth	0	0	0	69	132	196
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***254***	***310***	***347***	***443***	***530***	***615***
Reserve (Shortage)	**0**	**59**	**2**	**0**	**0**	**0**

Table C-195
Kerens

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,937**	**1,937**	**1,937**	**1,937**	**1,937**	**1,937**
Projected Water Demand						
Municipal Demand	460	453	447	440	436	436
Total Projected Demand	***460***	***453***	***447***	***440***	***436***	***436***
Currently Available Water Supplies						
Corsicana	368	368	368	368	368	361
Total Current Supplies	***368***	***368***	***368***	***368***	***368***	***361***
Need (Demand - Current Supply)	***92***	***85***	***79***	***72***	***68***	***75***
Water Management Strategies						
Water Conservation	4	10	14	16	17	19
Additional Water from Corsicana	88	75	65	56	51	56
Total Water Management Strategies	***92***	***85***	***79***	***72***	***68***	***75***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-196
Kiowa Homeowners Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,324**	**3,567**	**3,691**	**3,711**	**3,710**	**3,709**
Projected Water Demand						
Municipal Demand	875	931	955	952	948	947
Total Projected Demand	***875***	***931***	***955***	***952***	***948***	***947***
Currently Available Water Supplies						
Trinity Aquifer	887	887	887	887	887	887
Total Current Supplies	***887***	***887***	***887***	***887***	***887***	***887***
Need (Demand - Current Supply)	***0***	***44***	***68***	***65***	***61***	***60***
Water Management Strategies						
Water Conservation	6	20	28	31	34	38
Cooke County Water Supply Project	0	100	100	100	100	100
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***120***	***128***	***131***	***134***	***138***
Reserve (Shortage)	**18**	**76**	**60**	**66**	**73**	**78**

Table C-197
Krugerville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,672**	**1,918**	**2,228**	**2,900**	**3,783**	**5,422**
Projected Water Demand						
Municipal Demand	204	228	257	331	428	613
Total Projected Demand	***204***	***228***	***257***	***331***	***428***	***613***
Currently Available Water Supplies						
Mustang Special Utility District (UTRWD and Groundwater)	214	176	167	171	175	193
Total Current Supplies	***214***	***176***	***167***	***171***	***175***	***193***
Need (Demand - Current Supply)	***0***	***52***	***90***	***160***	***253***	***420***
Water Management Strategies						
Water Conservation	3	10	14	20	28	42
Additional Water from Mustang SUD	0	42	88	163	260	424
Total Water Management Strategies	***3***	***52***	***102***	***183***	***288***	***466***
Reserve (Shortage)	**13**	**0**	**12**	**23**	**35**	**46**

Table C-198
Krum

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,200**	**4,600**	**5,000**	**5,500**	**6,200**	**7,000**
Projected Water Demand						
Municipal Demand	640	721	773	838	945	1,066
Total Projected Demand	***640***	***721***	***773***	***838***	***945***	***1,066***
Currently Available Water Supplies						
Upper Trinity Regional Water District	208	105	94	94	98	108
Trinity Aquifer	427	427	427	427	427	427
Total Current Supplies	***635***	***532***	***521***	***521***	***525***	***535***
Need (Demand - Current Supply)	***5***	***189***	***252***	***317***	***420***	***531***
Water Management Strategies						
Water Conservation	15	31	41	48	57	68
Additional Water from UTRWD	0	158	254	354	491	634
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***15***	***189***	***295***	***402***	***548***	***702***
Reserve (Shortage)	**10**	**0**	**43**	**85**	**128**	**171**

Table C-199
Ladonia

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**800**	**1,600**	**2,000**	**2,200**	**2,500**	**3,000**
Projected Water Demand	291	577	715	779	879	1,055
Municipal Demand	291	577	715	779	879	1,055
Total Projected Demand	***291***	***577***	***715***	***779***	***879***	***1,055***
Currently Available Water Supplies						
Trinity Aquifer	320	320	320	320	320	320
Total Current Supplies	***320***	***320***	***320***	***320***	***320***	***320***
Need (Demand - Current Supply)	***0***	***257***	***395***	***459***	***559***	***735***
Water Management Strategies						
Water Conservation	5	31	46	57	72	95
Upper Trinity Regional Water District (Ralph Hall Lake)	0	342	492	558	663	851
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***373***	***538***	***615***	***735***	***946***
Reserve (Shortage)	**34**	**116**	**143**	**156**	**176**	**211**

Table C-200
Lake Dallas

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,902**	**9,102**	**9,933**	**9,933**	**9,933**	**9,933**
Projected Water Demand						
Municipal Demand	1,354	1,580	1,702	1,691	1,680	1,680
Total Projected Demand	***1,354***	***1,580***	***1,702***	***1,691***	***1,680***	***1,680***
Currently Available Water Supplies						
Lake Cities Municipal Utility Authority (UTRWD and Groundwater)	1,414	750	597	491	409	357
Total Current Supplies	***1,414***	***750***	***597***	***491***	***409***	***357***
Need (Demand - Current Supply)	***0***	***830***	***1,105***	***1,200***	***1,271***	***1,323***
Water Management Strategies						
Water Conservation	40	84	114	128	142	156
Additional Water from Lake Cities MUA	0	828	1,070	1,152	1,199	1,227
Total Water Management Strategies	***40***	***912***	***1,184***	***1,280***	***1,341***	***1,383***
Reserve (Shortage)	**100**	**82**	**79**	**80**	**70**	**60**

Table C-201
Lake Worth

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,854**	**5,400**	**6,000**	**6,600**	**7,200**	**7,500**
Projected Water Demand						
Municipal Demand	930	1,010	1,102	1,190	1,290	1,344
Total Projected Demand	***930***	***1,010***	***1,102***	***1,190***	***1,290***	***1,344***
Currently Available Water Supplies						
Trinity Aquifer	240	240	240	240	240	240
Fort Worth (TRWD)	555	610	590	570	558	515
Total Current Supplies	***795***	***850***	***830***	***810***	***798***	***755***
Need (Demand - Current Supply)	***135***	***160***	***272***	***380***	***492***	***589***
Water Management Strategies						
Water Conservation	30	66	89	108	128	145
Additional Water from Fort Worth	0	0	78	167	259	339
New Wells	105	105	105	105	105	105
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***135***	***171***	***272***	***380***	***492***	***589***
Reserve (Shortage)	**0**	**11**	**0**	**0**	**0**	**0**

Table C-202
Lakeside

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,252**	**1,451**	**1,655**	**1,871**	**2,130**	**2,436**
Projected Water Demand						
Municipal Demand	447	512	580	652	740	846
Total Projected Demand	***447***	***512***	***580***	***652***	***740***	***846***
Currently Available Water Supplies						
Trinity Aquifer	582	582	582	582	582	582
Total Current Supplies	***582***	***582***	***582***	***582***	***582***	***582***
Need (Demand - Current Supply)	***0***	***0***	***0***	***70***	***158***	***264***
Water Management Strategies						
Water Conservation	8	15	21	59	107	130
Additional Trinity Aquifer (new wells)	0	0	264	264	264	264
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***15***	***285***	***323***	***371***	***394***
Reserve (Shortage)	**143**	**85**	**287**	**253**	**213**	**130**

Table C-203
Lancaster

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**38,000**	**59,664**	**65,301**	**65,301**	**65,301**	**65,301**
Projected Water Demand						
Municipal Demand	5,704	8,755	9,436	9,363	9,363	9,363
Total Projected Demand	***5,704***	***8,755***	***9,436***	***9,363***	***9,363***	***9,363***
Currently Available Water Supplies						
Dallas Water Utilities	5,162	5,601	5,601	5,601	5,601	5,066
Rockett Special Utility District (TRWD)	66	63	57	50	45	39
Total Current Supplies	***5,228***	***5,664***	***5,658***	***5,651***	***5,646***	***5,105***
Need (Demand - Current Supply)	***476***	***3,091***	***3,778***	***3,712***	***3,717***	***4,258***
Water Management Strategies						
Water Conservation	62	281	378	411	442	474
Additional Water from DWU and New Delivery Point	390	2,783	3,367	3,261	3,230	3,733
Additional Water from Rockett SUD	24	27	33	40	45	51
Total Water Management Strategies	***476***	***3,091***	***3,778***	***3,712***	***3,717***	***4,258***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-204
Lavon Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,201**	**14,306**	**19,954**	**25,000**	**31,668**	**41,841**
Projected Water Demand						
Municipal Demand	559	1,746	2,414	2,997	3,796	5,015
Total Projected Demand	***559***	***1,746***	***2,414***	***2,997***	***3,796***	***5,015***
Currently Available Water Supplies						
North Texas Municipal Water District	549	1,421	1,706	1,903	2,180	2,677
Total Current Supplies	***549***	***1,421***	***1,706***	***1,903***	***2,180***	***2,677***
Need (Demand - Current Supply)	***10***	***325***	***708***	***1,094***	***1,616***	***2,338***
Water Management Strategies						
Water Conservation	10	96	149	197	262	363
Additional Water from NTMWD	0	229	559	897	1,354	1,975
Total Water Management Strategies	***10***	***325***	***708***	***1,094***	***1,616***	***2,338***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-205
Leonard

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,149**	**2,502**	**3,500**	**5,500**	**8,000**	**10,000**
Projected Water Demand						
Municipal Demand	303	342	466	720	1,040	1,299
Total Projected Demand	***303***	***342***	***466***	***720***	***1,040***	***1,299***
Currently Available Water Supplies						
Woodbine Aquifer	333	333	333	333	333	333
Total Current Supplies	***333***	***333***	***333***	***333***	***333***	***333***
Need (Demand - Current Supply)	***0***	***9***	***133***	***387***	***707***	***966***
Water Management Strategies						
Water Conservation	6	15	26	44	67	88
Fannin County Water Supply Project	0	62	200	487	848	1,138
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***77***	***226***	***531***	***915***	***1,226***
Reserve (Shortage)	**36**	**68**	**93**	**144**	**208**	**260**

Table C-206
Lewisville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**97,709**	**110,002**	**122,002**	**136,002**	**155,002**	**176,515**
Projected Water Demand						
Municipal Demand	19,263	21,317	23,506	26,051	29,517	33,613
Customer Demand (Denton Co FWSD)	99	522	704	892	1,084	1,285
Total Projected Demand	***19,362***	***21,839***	***24,210***	***26,943***	***30,601***	***34,898***
Currently Available Water Supplies						
Dallas Water Utilities	17,804	16,402	17,366	18,143	19,011	19,064
Total Current Supplies	***17,804***	***16,402***	***17,366***	***18,143***	***19,011***	***19,064***
Need (Demand - Current Supply)	***1,558***	***5,437***	***6,844***	***8,800***	***11,590***	***15,834***
Water Management Strategies						
Water Conservation	918	1,742	2,277	2,808	3,458	4,245
Additional Water from DWU with New WTP and Expansions	640	3,695	4,567	5,992	8,132	11,589
Total Water Management Strategies	***1,558***	***5,437***	***6,844***	***8,800***	***11,590***	***15,834***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-207
Lincoln Park

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**680**	**835**	**990**	**1,145**	**1,300**	**1,500**
Projected Water Demand						
Municipal Demand	102	132	155	178	202	234
Total Projected Demand	***102***	***132***	***155***	***178***	***202***	***234***
Currently Available Water Supplies						
Trinity Aquifer	49	49	49	49	49	49
Upper Trinity Regional Water District	67	35	30	29	27	28
Total Current Supplies	***116***	***84***	***79***	***78***	***76***	***77***
Need (Demand - Current Supply)	***0***	***48***	***76***	***100***	***126***	***157***
Water Management Strategies						
Water Conservation	1	5	7	9	10	13
Additional Water from UTRWD	1	59	88	114	142	173
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***64***	***95***	***123***	***152***	***186***
Reserve (Shortage)	**16**	**16**	**19**	**23**	**26**	**29**

Table C-208
Lindsay

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**879**	**943**	**976**	**981**	**981**	**981**
Projected Water Demand						
Municipal Demand	154	161	164	162	160	160
Total Projected Demand	***154***	***161***	***164***	***162***	***160***	***160***
Currently Available Water Supplies						
Trinity Aquifer	165	165	165	165	165	165
Total Current Supplies	***165***	***165***	***165***	***165***	***165***	***165***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	5	7	8	8	9
Cooke County Water Supply Project	0	40	50	50	50	50
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***45***	***57***	***58***	***58***	***59***
Reserve (Shortage)	**13**	**49**	**58**	**61**	**63**	**64**

Table C-209
Little Elm

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**24,000**	**29,250**	**35,650**	**40,371**	**40,371**	**40,371**
Projected Water Demand						
Municipal Demand	4,731	6,061	7,348	8,321	8,321	8,321
Total Projected Demand	***4,731***	***6,061***	***7,348***	***8,321***	***8,321***	***8,321***
Currently Available Water Supplies						
Woodbine Aquifer	286	286	286	286	286	286
North Texas Municipal Water District	3,812	4,367	4,702	4,843	4,379	4,070
Total Current Supplies	***4,098***	***4,653***	***4,988***	***5,129***	***4,665***	***4,356***
Need (Demand - Current Supply)	***633***	***1,408***	***2,360***	***3,192***	***3,656***	***3,965***
Water Management Strategies						
Water Conservation	223	445	632	789	859	929
Additional Water from NTMWD	0	553	1,318	1,993	2,387	2,626
New Wells-Woodbine Aquifer	410	410	410	410	410	410
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***633***	***1,408***	***2,360***	***3,192***	***3,656***	***3,965***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-210
Log Cabin

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**883**	**1,046**	**1,200**	**1,200**	**1,200**	**1,200**
Projected Water Demand						
Municipal Demand	96	128	144	142	141	141
Total Projected Demand	***96***	***128***	***144***	***142***	***141***	***141***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	275	275	275	275	275	275
Total Current Supplies	***275***	***275***	***275***	***275***	***275***	***275***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	6	8	9	8	10
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***6***	***8***	***9***	***8***	***10***
Reserve (Shortage)	**181**	**153**	**139**	**142**	**142**	**144**

Table C-211
Lowry Crossing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,898**	**2,434**	**2,910**	**3,000**	**3,000**	**3,000**
Projected Water Demand						
Municipal Demand	366	458	541	554	551	551
Total Projected Demand	***366***	***458***	***541***	***554***	***551***	***551***
Currently Available Water Supplies						
Milligan WSC (NTMWD)	362	373	382	352	316	294
Total Current Supplies	***362***	***373***	***382***	***352***	***316***	***294***
Need (Demand - Current Supply)	***4***	***85***	***159***	***202***	***235***	***257***
Water Management Strategies						
Water Conservation	4	22	33	39	43	48
Additional Water from Milligan WSC	0	63	126	163	192	209
Total Water Management Strategies	***4***	***85***	***159***	***202***	***235***	***257***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-212
Lucas

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**6,400**	**9,849**	**12,000**	**15,500**	**22,000**	**30,000**
Projected Water Demand						
Municipal Demand	1,032	1,533	1,828	2,344	3,327	4,537
Total Projected Demand	***1,032***	***1,533***	***1,828***	***2,344***	***3,327***	***4,537***
Currently Available Water Supplies						
North Texas Municipal Water District	1,018	1,248	1,292	1,489	1,911	2,422
Total Current Supplies	***1,018***	***1,248***	***1,292***	***1,489***	***1,911***	***2,422***
Need (Demand - Current Supply)	***14***	***285***	***536***	***855***	***1,416***	***2,115***
Water Management Strategies						
Water Conservation	14	56	83	116	175	254
Additional Water from NTMWD	0	229	453	739	1,241	1,861
Total Water Management Strategies	***14***	***285***	***536***	***855***	***1,416***	***2,115***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-213
Luella Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,300**	**3,800**	**4,300**	**4,950**	**5,080**	**5,770**
Projected Water Demand						
Municipal Demand	410	460	511	582	592	672
Total Projected Demand	***410***	***460***	***511***	***582***	***592***	***672***
Currently Available Water Supplies						
Woodbine Aquifer	450	450	450	450	450	450
Total Current Supplies	***450***	***450***	***450***	***450***	***450***	***450***
Need (Demand - Current Supply)	***0***	***10***	***61***	***132***	***142***	***222***
Water Management Strategies						
Water Conservation	5	18	27	33	36	43
Grayson County Water Supply Project (Sherman WTP)	0	38	80	140	150	220
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***56***	***107***	***173***	***186***	***263***
Reserve (Shortage)	**45**	**46**	**46**	**41**	**44**	**41**

Table C-214
MEN Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,421**	**3,755**	**4,137**	**4,477**	**4,762**	**5,180**
Projected Water Demand						
Municipal Demand	441	471	510	542	571	621
Total Projected Demand	***441***	***471***	***510***	***542***	***571***	***621***
Currently Available Water Supplies						
Corsicana	441	471	479	492	497	515
Total Current Supplies	***441***	***471***	***479***	***492***	***497***	***515***
Need (Demand - Current Supply)	***0***	***0***	***31***	***50***	***74***	***106***
Water Management Strategies						
Water Conservation	6	18	26	30	34	39
Additional Water from Corsicana	0	0	5	20	40	67
Total Water Management Strategies	***6***	***18***	***31***	***50***	***74***	***106***
Reserve (Shortage)	**6**	**18**	**0**	**0**	**0**	**0**

Table C-215
Mabank

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,074**	**3,729**	**4,401**	**5,142**	**6,058**	**7,194**
Projected Water Demand						
Municipal Demand	671	801	931	1,083	1,269	1,507
Customer (Gun Barrel City)	704					
Total Projected Demand	***1,375***	***801***	***931***	***1,083***	***1,269***	***1,507***
Currently Available Water Supplies						
Tarrant Regional Water District	1,369	735	726	730	750	777
Total Current Supplies	***1,369***	***735***	***726***	***730***	***750***	***777***
Need (Demand - Current Supply)	***6***	***66***	***205***	***353***	***519***	***730***
Water Management Strategies						
Water Conservation	6	71	173	210	257	318
Additional Water from TRWD and Treatment Plant Expansion	0	0	32	143	262	412
Total Water Management Strategies	***6***	***71***	***205***	***353***	***519***	***730***
Reserve (Shortage)	**0**	**5**	**0**	**0**	**0**	**0**

Table C-216
MacBee Special Utility District (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**277**	**348**	**421**	**502**	**602**	**726**
Projected Water Demand in Region C						
Municipal Demand	36	45	54	65	78	94
Total Projected Demand in Region C	***36***	***45***	***54***	***65***	***78***	***94***
Currently Available Water Supplies						
Sabine River Authority (Region D)	36	43	51	62	74	88
Total Current Supplies	***36***	***43***	***51***	***62***	***74***	***88***
Need (Demand - Current Supply)	***0***	***2***	***3***	***3***	***4***	***6***
Water Management Strategies						
Water Conservation	0	2	3	3	4	6
Total Water Management Strategies	***0***	***2***	***3***	***3***	***4***	***6***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: Water Management Strategies for MacBee SUD are covered in the Region D plan.

Table C-217
Malakoff

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,390**	**2,535**	**2,678**	**2,824**	**3,003**	**3,228**
Projected Water Demand						
Municipal Demand	348	361	372	383	404	434
Total Projected Demand	***348***	***361***	***372***	***383***	***404***	***434***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	410	410	410	410	410	410
Tarrant Regional Water District	171	165	145	129	119	112
Total Current Supplies	***581***	***575***	***555***	***539***	***529***	***522***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	3	11	15	17	20	22
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***11***	***15***	***17***	***20***	***22***
Reserve (Shortage)	**236**	**225**	**198**	**173**	**145**	**110**

Table C-218
Mansfield (Regions C and G)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**57,337**	**87,375**	**108,258**	**123,658**	**139,058**	**154,458**
Projected Water Demand						
Municipal Demand	13,632	19,020	24,481	29,385	33,043	36,701
Manufacturing and Customer Demand	1,855	10,293	13,688	13,721	13,751	13,777
Total Projected Demand	***15,487***	***29,313***	***38,169***	***43,106***	***46,794***	***50,478***
Currently Available Water Supplies						
Tarrant Regional Water District (Limited by Treatment Plant Capacity)	14,956	16,815	16,815	16,815	16,815	16,815
Total Current Supplies	***14,956***	***16,815***	***16,815***	***16,815***	***16,815***	***16,815***
Need (Demand - Current Supply)	***531***	***12,498***	***21,354***	***26,291***	***29,979***	***33,663***
Water Management Strategies						
Water Conservation (Mansfield and Customers)	531	1,914	2,709	3,459	4,146	4,889
Additional Water from TRWD, Treatment Plant Expansions, and New Plant	0	10,584	18,645	22,832	25,833	28,774
Total Water Management Strategies	***531***	***12,498***	***21,354***	***26,291***	***29,979***	***33,663***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Apppendix H for details on customer demands.

Table C-219
Marilee Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,300**	**6,400**	**8,653**	**10,679**	**13,471**	**16,560**
Projected Water Demand						
Municipal Demand	530	774	1,027	1,256	1,585	1,948
Total Projected Demand	***530***	***774***	***1,027***	***1,256***	***1,585***	***1,948***
Currently Available Water Supplies						
Trinity Aquifer	634	634	634	634	634	634
Grayson County Water Supply Project (Sherman Plant)	127	100	203	262	326	353
Total Current Supplies	***761***	***734***	***837***	***896***	***960***	***987***
Need (Demand - Current Supply)	***0***	***40***	***190***	***360***	***625***	***961***
Water Management Strategies						
Water Conservation	14	50	74	96	126	162
Additional Water from Grayson County Water Supply Project	0	50	197	388	674	997
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***14***	***100***	***271***	***484***	***800***	***1,159***
Reserve (Shortage)	**245**	**60**	**81**	**124**	**175**	**198**

Table C-220
Maypearl

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,000**	**1,250**	**1,500**	**1,500**	**1,500**	**1,500**
Projected Water Demand						
Municipal Demand	195	238	282	276	272	272
Total Projected Demand	***195***	***238***	***282***	***276***	***272***	***272***
Currently Available Water Supplies						
Trinity Aquifer	55	55	55	55	55	55
Woodbine Aquifer	160	160	160	160	160	160
Total Current Supplies	***215***	***215***	***215***	***215***	***215***	***215***
Need (Demand - Current Supply)	***0***	***23***	***67***	***61***	***57***	***57***
Water Management Strategies						
Water Conservation	2	13	19	21	23	26
Ellis County Water Supply Projects (Waxahachie from TRA from TRWD)	0	10	48	40	34	31
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***23***	***67***	***61***	***57***	***57***
Reserve (Shortage)	**22**	**0**	**0**	**0**	**0**	**0**

Table C-221
McKinney

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**130,000**	**200,000**	**275,000**	**350,000**	**380,000**	**380,000**
Projected Water Demand						
Municipal Demand	34,366	53,767	73,929	94,092	102,157	102,157
Customer Demand*	1,581	1,937	2,242	2,559	2,902	3,268
Total Projected Demand	***35,947***	***55,704***	***76,171***	***96,651***	***105,059***	***105,425***
Currently Available Water Supplies						
North Texas Municipal Water District	35,329	45,504	54,100	61,711	60,740	56,872
Total Current Supplies	***35,329***	***45,504***	***54,100***	***61,711***	***60,740***	***56,872***
Need (Demand - Current Supply)	***618***	***10,200***	***22,071***	***34,940***	***44,319***	***48,553***
Water Management Strategies						
Water Conservation	672	4,199	8,876	12,114	14,063	15,011
Additional Water from NTMWD	0	6,078	13,321	23,015	30,539	34,171
Total Water Management Strategies	***672***	***10,277***	***22,197***	***35,129***	***44,602***	***49,182***
Reserve (Shortage)	**54**	**77**	**126**	**189**	**283**	**629**

* Customer demand includes: all of Danville WSC, 20% of North Collin WSC, and 561 ac-ft/yr for Melissa.

Table C-222
McLendon-Chisholm

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,800**	**2,000**	**2,200**	**2,400**	**2,765**	**3,255**
Projected Water Demand						
Municipal Demand	272	296	320	347	396	467
Total Projected Demand	***272***	***296***	***320***	***347***	***396***	***467***
Currently Available Water Supplies						
North Texas Municipal Water District (through High Point WSC and RCH WSC)	268	241	226	220	227	249
Total Current Supplies	***268***	***241***	***226***	***220***	***227***	***249***
Need (Demand - Current Supply)	***4***	***55***	***94***	***127***	***169***	***218***
Water Management Strategies						
Water Conservation	4	11	15	18	22	27
Additional Water from NTMWD	0	44	79	109	147	191
Total Water Management Strategies	***4***	***55***	***94***	***127***	***169***	***218***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-223
Melissa

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,000**	**23,000**	**35,000**	**50,000**	**70,000**	**77,044**
Projected Water Demand						
Municipal Demand	807	4,972	7,527	10,753	15,055	16,570
Total Projected Demand	***807***	***4,972***	***7,527***	***10,753***	***15,055***	***16,570***
Currently Available Water Supplies						
Woodbine Aquifer	108	108	108	108	108	108
North Texas Municipal Water District (through McKinney)	561	561	561	561	561	561
North Texas Municipal Water District (GTUA Collin-Grayson Municipal Alliance Pipeline)	126	3,398	4,684	6,200	8,024	8,226
Total Current Supplies	***795***	***4,067***	***5,353***	***6,869***	***8,693***	***8,895***
Need (Demand - Current Supply)	***12***	***905***	***2,174***	***3,884***	***6,362***	***7,675***
Water Management Strategies						
Water Conservation	12	146	255	401	967	1,218
Additional Water from NTMWD (GTUA CGMA Pipeline)	0	759	1,919	3,483	5,395	6,457
Treated Water Supply Line from NTMWD	0	0	0	0	0	0
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***12***	***905***	***2,174***	***3,884***	***6,362***	***7,675***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-224
Mesquite

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**142,002**	**165,003**	**180,004**	**183,168**	**183,445**	**183,501**
Projected Water Demand						
Municipal Demand	26,245	30,312	33,874	34,469	34,521	34,532
Total Projected Demand	***26,245***	***30,312***	***33,874***	***34,469***	***34,521***	***34,532***
Currently Available Water Supplies						
North Texas Municipal Water District	26,024	24,671	23,946	21,893	19,826	18,433
Total Current Supplies	***26,024***	***24,671***	***23,946***	***21,893***	***19,826***	***18,433***
Need (Demand - Current Supply)	***221***	***5,641***	***9,928***	***12,576***	***14,695***	***16,099***
Water Management Strategies						
Water Conservation	221	1,685	2,651	3,049	3,347	3,636
Additional Water from NTMWD	0	3,956	7,277	9,527	11,348	12,463
Total Water Management Strategies	***221***	***5,641***	***9,928***	***12,576***	***14,695***	***16,099***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-225
Midlothian

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**4,854**	**5,400**	**6,000**	**6,600**	**7,200**	**7,500**
Projected Water Demand						
Municipal Demand	3,438	6,765	9,174	11,151	13,178	15,206
Manufacturing and Customer Demand	4,054	12,609	12,780	13,069	13,535	14,019
Total Projected Demand	***7,492***	***19,374***	***21,954***	***24,220***	***26,713***	***29,225***
Currently Available Water Supplies						
Joe Pool Lake (TRA)	5,954	5,833	5,712	5,591	5,470	5,349
Joe Pool Lake from Grand Prairie (TRA - limited by treatment plant capacity)	1,304	1,272	1,239	1,207	1,174	1,141
Total Current Supplies	***7,258***	***7,104***	***6,951***	***6,798***	***6,644***	***6,490***
Need (Demand - Current Supply)	***234***	***12,270***	***15,003***	***17,422***	***20,069***	***22,735***
Water Management Strategies						
Water Conservation (City & customers)	234	1,432	1,927	2,346	2,780	3,245
New WTP (9 mgd), TRWD Supply		5,045	5,045	5,045	5,045	5,045
WTP Expansion (9 mgd), TRWD Supply		5,045	5,045	5,045	5,045	5,045
WTP Expansion (9 mgd), TRWD Supply		748	2,986	4,986	5,045	5,045
WTP Expansion (9 mgd), TRWD Supply				0	2,154	4,355
Total Water Management Strategies	***234***	***12,270***	***15,003***	***17,422***	***20,069***	***22,735***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Apppendix H for details on customer demands.

Table C-226
Milford

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**737**	**737**	**737**	**737**	**737**	**737**
Projected Water Demand						
Municipal Demand	132	130	127	125	122	122
Total Projected Demand	***132***	***130***	***127***	***125***	***122***	***122***
Currently Available Water Supplies						
Woodbine Aquifer	145	145	145	145	145	145
Files Valley Water Supply Corporation (BRA in Region G)	84	84	84	84	84	84
Total Current Supplies	***229***	***229***	***229***	***229***	***229***	***229***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	4	5	5	6	6
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***4***	***5***	***5***	***6***	***6***
Reserve (Shortage)	**98**	**103**	**107**	**109**	**113**	**113**

Table C-227
Milligan WSC

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside Lowry Crossing	1,621	1,621	1,621	1,621	1,621	1,621
Lowry Crossing	1,898	2,434	2,910	3,000	3,000	3,000
Total Population Served	**3,519**	**4,055**	**4,531**	**4,621**	**4,621**	**4,621**
Projected Water Demand						
Outside Lowry Crossing	202	196	191	185	183	183
Lowry Crossing	366	458	541	554	551	551
Total Projected Demand	***568***	***654***	***732***	***739***	***734***	***734***
Currently Available Water Supplies						
North Texas Municipal Water District	561	532	517	469	422	392
Total Current Supplies	***561***	***532***	***517***	***469***	***422***	***392***
Need (Demand - Current Supply)	***7***	***122***	***215***	***270***	***312***	***342***
Water Management Strategies						
Water Conservation	7	32	45	52	56	62
Additional Water from NTMWD	0	90	170	218	256	280
Total Water Management Strategies	***7***	***122***	***215***	***270***	***312***	***342***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-228
Mineral Wells (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**
Projected Water Demand in Region C						
Municipal Demand	766	753	744	730	726	726
Total Projected Demand in Region C	***766***	***753***	***744***	***730***	***726***	***726***
Currently Available Water Supplies						
Palo Pinto County WCID # 1	756	734	719	703	697	694
Total Current Supplies	***756***	***734***	***719***	***703***	***697***	***694***
Need (Demand - Current Supply)	***10***	***19***	***25***	***27***	***29***	***32***
Water Management Strategies						
Water Conservation	10	19	25	27	29	32
Total Water Management Strategies	***10***	***19***	***25***	***27***	***29***	***32***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-229
Mountain Peak Special Utility District (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**6,691**	**7,509**	**7,964**	**9,194**	**11,305**	**14,031**
Projected Water Demand in Region C						
Municipal Demand	1,207	1,337	1,409	1,607	1,975	2,452
Total Projected Demand in Region C	***1,207***	***1,337***	***1,409***	***1,607***	***1,975***	***2,452***
Currently Available Water Supplies						
Trinity Aquifer	751	751	751	751	751	751
Midlothian	63	538	513	578	723	876
Total Current Supplies	***814***	***1,289***	***1,264***	***1,329***	***1,474***	***1,627***
Need (Demand - Current Supply)	***393***	***48***	***145***	***278***	***501***	***825***
Water Management Strategies						
Water Conservation	46	85	110	141	189	257
Overdraft Trinity Aquifer in 2010	301	0	0	0	0	0
Woodbine Aquifer (new wells)	0	200	200	200	200	200
Additional Water from Midlothian	46	0	0	0	112	368
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***393***	***285***	***310***	***341***	***501***	***825***
Reserve (Shortage)	**0**	**237**	**165**	**63**	**0**	**0**

Table C-230
Mount Zion Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,700**	**1,700**	**1,700**	**1,700**	**1,700**	**1,700**
Projected Water Demand						
Municipal Demand	442	436	430	425	421	421
Total Projected Demand	***442***	***436***	***430***	***425***	***421***	***421***
Currently Available Water Supplies						
North Texas Municipal Water District	439	355	304	270	242	225
Total Current Supplies	***439***	***355***	***304***	***270***	***242***	***225***
Need (Demand - Current Supply)	***3***	***81***	***126***	***155***	***179***	***196***
Water Management Strategies						
Water Conservation	3	20	25	29	32	36
Additional Water from NTMWD	0	61	101	126	147	160
Total Water Management Strategies	***3***	***81***	***126***	***155***	***179***	***196***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-231
Muenster

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,700**	**1,800**	**1,900**	**2,000**	**2,100**	**2,200**
Projected Water Demand						
Municipal Demand	339	351	366	379	395	414
Cooke County Manufacturing	0	0	60	61	63	65
Total Projected Demand	***339***	***351***	***426***	***440***	***458***	***479***
Currently Available Water Supplies						
Trinity Aquifer	339	339	339	339	339	339
Total Current Supplies	***339***	***339***	***339***	***339***	***339***	***339***
Need (Demand - Current Supply)	***0***	***12***	***87***	***101***	***119***	***140***
Water Management Strategies						
Water Conservation	3	9	13	25	29	34
New WTP at Muenster Lake	0	280	280	280	280	280
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***289***	***293***	***305***	***309***	***314***
Reserve (Shortage)	**3**	**277**	**206**	**204**	**190**	**174**

Table C-232
Murphy

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**14,000**	**28,500**	**28,500**	**28,500**	**28,500**	**28,500**
Projected Water Demand						
Municipal Demand	4,234	8,556	8,556	8,556	8,556	8,556
Total Projected Demand	***4,234***	***8,556***	***8,556***	***8,556***	***8,556***	***8,556***
Currently Available Water Supplies						
North Texas Municipal Water District	4,192	6,964	6,048	5,434	4,914	4,567
Total Current Supplies	***4,192***	***6,964***	***6,048***	***5,434***	***4,914***	***4,567***
Need (Demand - Current Supply)	***42***	***1,592***	***2,508***	***3,122***	***3,642***	***3,989***
Water Management Strategies						
Water Conservation	42	411	507	580	651	722
Additional Water from NTMWD	0	1,181	2,001	2,542	2,991	3,267
Total Water Management Strategies	***42***	***1,592***	***2,508***	***3,122***	***3,642***	***3,989***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-233
Mustang Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside of Cities	6,580	9,897	13,015	24,500	36,000	47,000
In Crossroads	1,500	3,800	3,800	3,800	3,800	3,800
In Krugerville	1,672	1,918	2,228	2,900	3,783	5,422
In Oak Point	3,988	8,534	12,812	14,471	16,141	17,905
Total Population Served	**13,740**	**24,149**	**31,855**	**45,671**	**59,724**	**74,127**
Projected Water Demand						
Outside of Cities	921	1,474	1,939	3,623	5,323	6,949
In Crossroads	575	1,234	1,230	1,230	1,230	1,230
In Krugerville	204	228	257	331	428	613
In Oak Point	585	1,377	2,067	2,318	2,585	2,868
Total Projected Demand	***2,285***	***4,313***	***5,493***	***7,502***	***9,566***	***11,660***
Currently Available Water Supplies						
Trinity Aquifer	1,162	1,162	1,162	1,162	1,162	1,162
Upper Trinity Regional Water District	1,096	1,128	1,080	1,239	1,325	1,457
Total Current Supplies	***2,258***	***2,290***	***2,242***	***2,401***	***2,487***	***2,619***
Need (Demand - Current Supply)	***27***	***2,023***	***3,251***	***5,101***	***7,079***	***9,041***
Water Management Strategies						
Water Conservation	54	226	346	512	698	902
Additional Water from UTRWD	0	1,797	3,021	4,821	6,730	8,604
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***54***	***2,023***	***3,367***	***5,333***	***7,428***	***9,506***
Reserve (Shortage)	**27**	**0**	**116**	**232**	**349**	**465**

Table C-234
Navarro County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
Local Supplies	226	226	226	226	226	226
Total Current Supplies	***226***	***226***	***226***	***226***	***226***	***226***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**226**	**226**	**226**	**226**	**226**	**226**

Table C-235
Navarro County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,543**	**1,543**	**1,543**	**1,543**	**1,543**	**1,543**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	15	15	15	15	15	15
Livestock Local Supply	1,603	1,603	1,603	1,603	1,603	1,603
Nacatoch Aquifer	10	10	10	10	10	10
Other Aquifer	104	104	104	104	104	104
Total Current Supplies	***1,732***	***1,732***	***1,732***	***1,732***	***1,732***	***1,732***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**189**	**189**	**189**	**189**	**189**	**189**

Table C-236
Navarro County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,172**	**1,328**	**1,468**	**1,607**	**1,730**	**1,872**
Currently Available Water Supplies						
Corsicana	586	664	689	729	754	776
Tarrant Regional Water District	586	610	572	542	511	482
Total Current Supplies	***1,172***	***1,274***	***1,261***	***1,271***	***1,265***	***1,258***
Need (Demand - Current Supply)	***0***	***54***	***207***	***336***	***465***	***614***
Water Management Strategies						
Water Conservation	0	1	16	23	25	27
Additional water from Corsicana	0	0	37	63	98	146
Additional water from TRWD	0	53	154	250	342	441
Total Water Management Strategies	***0***	***54***	***207***	***336***	***465***	***614***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-237
Navarro County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**89**	**89**	**89**	**89**	**89**	**89**
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	73	73	73	73	73	73
Nacatoch Aquifer	38	38	38	38	38	38
Total Current Supplies	***111***	***111***	***111***	***111***	***111***	***111***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**22**	**22**	**22**	**22**	**22**	**22**

Table C-238
Navarro County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,760**	**1,760**	**1,760**	**1,760**	**1,760**	**1,760**
Projected Water Demand						
Municipal Demand	250	244	239	233	229	229
Total Projected Water Demand	***250***	***244***	***239***	***233***	***229***	***229***
Currently Available Water Supplies						
Woodbine Aquifer	200	200	200	200	200	200
Corsicana	150	146	134	127	119	114
Tarrant Regional Water District	99	90	75	63	54	47
Total Current Supplies	***449***	***436***	***409***	***390***	***373***	***361***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	8	11	12	13	14
Additional Water from Corsicana	0	0	3	6	11	15
Additional Water from TRWD	0	0	16	25	32	39
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***8***	***30***	***43***	***56***	***68***
Reserve (Shortage)	**201**	**200**	**200**	**200**	**200**	**200**

Table C-239
Navarro County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**8,000**	**13,440**	**13,440**	**13,440**	**13,440**
Currently Available Water Supplies						
None	0	0	0	0	0	0
Total Current Supplies	***0***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***8,000***	***13,440***	***13,440***	***13,440***	***13,440***
Water Management Strategies						
Corsicana	0	8,000	13,440	13,440	13,440	13,440
Total Water Management Strategies	***0***	***8,000***	***13,440***	***13,440***	***13,440***	***13,440***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-240
Navarro Mills Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,090**	**3,690**	**4,290**	**5,000**	**5,800**	**6,600**
Projected Water Demand						
Municipal Demand	329	442	500	577	663	754
Total Projected Demand	***329***	***442***	***500***	***577***	***663***	***754***
Currently Available Water Supplies						
Corsicana	329	442	470	524	578	625
Total Current Supplies	***329***	***442***	***470***	***524***	***578***	***625***
Need (Demand - Current Supply)	***0***	***0***	***30***	***53***	***85***	***129***
Water Management Strategies						
Water Conservation	5	18	27	33	41	49
Additional Water from Corsicana	0	0	3	20	44	80
Woodbine Aquifer (new well)	0	44	44	44	44	44
Total Water Management Strategies	***5***	***62***	***74***	***97***	***129***	***173***
Reserve (Shortage)	**5**	**62**	**44**	**44**	**44**	**44**

Table C-241
Nevada

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**690**	**1,500**	**1,800**	**3,600**	**6,000**	**15,000**
Projected Water Demand						
Municipal Demand	247	528	631	1,254	2,090	5,226
Total Projected Demand	***247***	***528***	***631***	***1,254***	***2,090***	***5,226***
Currently Available Water Supplies						
Nevada WSC (NTMWD)	245	429	446	796	1,200	2,790
Total Current Supplies	***245***	***429***	***446***	***796***	***1,200***	***2,790***
Need (Demand - Current Supply)	***2***	***99***	***185***	***458***	***890***	***2,436***
Water Management Strategies						
Water Conservation	2	22	33	76	145	405
Additional Water from Nevada WSC	0	77	152	382	745	2,031
Total Water Management Strategies	***2***	***99***	***185***	***458***	***890***	***2,436***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-242
New Fairview

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,587**	**2,167**	**2,732**	**3,290**	**3,921**	**4,654**
Projected Water Demand						
Municipal Demand	201	272	340	409	488	579
Total Projected Demand	***201***	***272***	***340***	***409***	***488***	***579***
Currently Available Water Supplies						
Trinity Aquifer	221	221	221	221	221	221
Total Current Supplies	***221***	***221***	***221***	***221***	***221***	***221***
Need (Demand - Current Supply)	***0***	***51***	***119***	***188***	***267***	***358***
Water Management Strategies						
Water Conservation	4	13	20	26	32	40
Rhome (from Walnut Ck. SUD from TRWD)	0	47	99	162	235	318
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***60***	***119***	***188***	***267***	***358***
Reserve (Shortage)	**24**	**9**	**0**	**0**	**0**	**0**

Table C-243
New Hope

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**826**	**1,200**	**2,000**	**3,000**	**4,500**	**10,000**
Projected Water Demand						
Municipal Demand	267	383	632	944	1,416	3,148
Total Projected Demand	***267***	***383***	***632***	***944***	***1,416***	***3,148***
Currently Available Water Supplies						
North Texas MWD (thru N. Collin WSC)	265	312	447	600	813	1,680
Total Current Supplies	***265***	***312***	***447***	***600***	***813***	***1,680***
Need (Demand - Current Supply)	***2***	***71***	***185***	***344***	***603***	***1,468***
Water Management Strategies						
Water Conservation	2	17	35	61	103	255
Additional Water from NTMWD	0	54	150	283	500	1,213
Total Water Management Strategies	***2***	***71***	***185***	***344***	***603***	***1,468***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-244
Newark

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,137**	**1,772**	**2,339**	**3,302**	**4,458**	**6,216**
Projected Water Demand						
Municipal Demand	154	232	301	418	564	787
Total Projected Demand	***154***	***232***	***301***	***418***	***564***	***787***
Currently Available Water Supplies						
Trinity Aquifer	169	169	169	169	169	169
Total Current Supplies	***169***	***169***	***169***	***169***	***169***	***169***
Need (Demand - Current Supply)	***0***	***63***	***132***	***249***	***395***	***618***
Water Management Strategies						
Water Conservation	3	11	17	26	37	54
Rhome (from Walnut Ck. SUD from TRWD)	0	52	115	223	358	564
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***63***	***132***	***249***	***395***	***618***
Reserve (Shortage)	**18**	**0**	**0**	**0**	**0**	**0**

Table C-245
North Collin Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,044**	**6,510**	**7,808**	**9,138**	**10,530**	**12,012**
Projected Water Demand						
Municipal Demand	876	1,116	1,321	1,525	1,757	2,005
Customer Demand	267	383	632	944	1,416	3,148
Total Projected Demand	***1,143***	***1,499***	***1,953***	***2,469***	***3,173***	***5,153***
Currently Available Water Supplies						
North Texas MWD (part thru McKinney)	1,129	1,220	1,381	1,569	1,822	2,750
Total Current Supplies	***1,129***	***1,220***	***1,381***	***1,569***	***1,822***	***2,750***
Need (Demand - Current Supply)	***14***	***279***	***572***	***900***	***1,351***	***2,403***
Water Management Strategies						
Water Conservation	14	88	137	193	269	461
Additional Water from NTMWD	0	191	435	707	1,082	1,942
Total Water Management Strategies	***14***	***279***	***572***	***900***	***1,351***	***2,403***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-246
North Hunt Water Supply Corporation (Region C Only)

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population in Region C	**380**	**427**	**462**	**488**	**514**	**542**
Projected Water Demand in Region C						
Municipal Demand	49	55	60	63	66	70
Total Projected Demand in Region C	***49***	***55***	***60***	***63***	***66***	***70***
Currently Available Water Supplies						
Woodbine Aquifer	77	77	77	77	77	77
Total Current Supplies	***77***	***77***	***77***	***77***	***77***	***77***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	2	3	3	4	4
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***2***	***3***	***3***	***4***	***4***
Reserve (Shortage)	**29**	**24**	**20**	**17**	**15**	**11**

Table C-247
North Richland Hills

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**64,861**	**73,503**	**79,341**	**83,286**	**85,951**	**87,751**
Projected Water Demand						
Municipal Demand	12,496	13,832	14,753	15,300	15,693	16,022
Manufacturing and Customer Demand	3,782	3,941	3,973	3,954	3,986	4,037
Total Projected Demand	***16,278***	***17,773***	***18,726***	***19,254***	***19,679***	***20,059***
Currently Available Water Supplies						
Trinity Aquifer	233	233	233	233	233	233
Trinity River Authority (TRWD)	8,673	8,883	8,055	7,228	6,491	5,779
Fort Worth (TRWD)	7,233	7,209	6,365	5,607	4,998	4,435
Total Current Supplies	***16,139***	***16,325***	***14,653***	***13,068***	***11,722***	***10,447***
Need (Demand - Current Supply)	***139***	***1,448***	***4,073***	***6,186***	***7,957***	***9,612***
Water Management Strategies						
Water Conservation	139	937	1,397	1,599	1,783	1,962
Additional Water from TRA	0	282	1,493	2,582	3,487	4,327
Additional Water from Fort Worth		229	1,183	2,005	2,687	3,323
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***139***	***1,448***	***4,073***	***6,186***	***7,957***	***9,612***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

See Appendix H for details on demands.

Table C-248
Northlake

(Values in Ac-Ft/Yr)	2010	2020	2030	2040	2050	2060
	Projected Population and Demand					
Projected Population	**1,700**	**4,974**	**5,753**	**11,059**	**16,364**	**19,684**
Projected Water Demand						
Municipal Demand	268	808	934	1,796	2,658	3,197
Total Projected Demand	***268***	***808***	***934***	***1,796***	***2,658***	***3,197***
Currently Available Water Supplies						
Woodbine Aquifer	218	218	218	218	218	218
Fort Worth (TRWD)	265	371	364	606	785	824
Upper Trinity Regional Water District	0	145	113	169	201	212
Total Current Supplies	***483***	***734***	***695***	***993***	***1,204***	***1,254***
Need (Demand - Current Supply)	***0***	***74***	***239***	***803***	***1,454***	***1,943***
Water Management Strategies						
Water Conservation	3	29	57	125	207	276
Additional Water from Fort Worth	0	18	74	229	440	637
Upper Trinity Regional Water District	0	245	326	667	1,025	1,248
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***292***	***457***	***1,021***	***1,672***	***2,161***
Reserve (Shortage)	**218**	**218**	**218**	**218**	**218**	**218**

Table C-249
Oak Grove

(Values in Ac-Ft/Yr)	2010	2020	2030	2040	2050	2060
	Projected Population and Demand					
Projected Population	**928**	**1,141**	**1,360**	**1,602**	**1,902**	**2,274**
Projected Water Demand						
Municipal Demand	124	148	172	201	236	283
Total Projected Demand	***124***	***148***	***172***	***201***	***236***	***283***
Currently Available Water Supplies						
North Kaufman County WSC (County Other, from NTMWD through Kaufman and Terrell)	122	120	122	128	136	151
Total Current Supplies	***122***	***120***	***122***	***128***	***136***	***151***
Need (Demand - Current Supply)	***2***	***28***	***50***	***73***	***100***	***132***
Water Management Strategies						
Water Conservation	2	6	9	12	15	19
Additional North Kaufman WSC	0	22	41	61	85	113
Total Water Management Strategies	***2***	***28***	***50***	***73***	***100***	***132***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-250
Oak Leaf

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,502**	**1,774**	**2,042**	**2,316**	**2,622**	**2,960**
Projected Water Demand						
Municipal Demand	338	393	448	503	567	640
Total Projected Demand	***338***	***393***	***448***	***503***	***567***	***640***
Currently Available Water Supplies						
Glenn Heights (DWU and Groundwater)	260	254	282	302	318	320
Rockett Special Utility District (TRWD)	40	39	35	31	27	24
Total Current Supplies	***300***	***293***	***317***	***333***	***345***	***344***
Need (Demand - Current Supply)	***38***	***100***	***131***	***170***	***222***	***296***
Water Management Strategies						
Water Conservation	10	20	29	37	47	58
Additional Water from Glenn Heights	13	64	82	109	147	207
Additional Water from Rockett SUD	15	16	20	24	28	31
Total Water Management Strategies	***38***	***100***	***131***	***170***	***222***	***296***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-251
Oak Point

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,988**	**8,534**	**12,812**	**14,471**	**16,141**	**17,905**
Projected Water Demand						
Municipal Demand	585	1,377	2,067	2,318	2,585	2,868
Total Projected Demand	***585***	***1,377***	***2,067***	***2,318***	***2,585***	***2,868***
Currently Available Water Supplies						
Mustang SUD (UTRWD and Groundwater)	350	429	475	452	427	427
Total Current Supplies	***350***	***429***	***475***	***452***	***427***	***427***
Need (Demand - Current Supply)	***235***	***948***	***1,592***	***1,866***	***2,158***	***2,441***
Water Management Strategies						
Water Conservation	9	77	141	178	220	268
Additional Water from Mustang SUD	226	871	1,451	1,688	1,938	2,173
Total Water Management Strategies	***235***	***948***	***1,592***	***1,866***	***2,158***	***2,441***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-252
Ovilla

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,850**	**6,070**	**8,290**	**10,508**	**11,050**	**11,846**
Projected Water Demand						
Municipal Demand	992	1,550	2,099	2,648	2,784	2,985
Total Projected Demand	***992***	***1,550***	***2,099***	***2,648***	***2,784***	***2,985***
Currently Available Water Supplies						
Dallas Water Utilities	861	1,122	1,465	1,745	1,695	1,600
Total Current Supplies	***861***	***1,122***	***1,465***	***1,745***	***1,695***	***1,600***
Need (Demand - Current Supply)	***131***	***428***	***634***	***903***	***1,089***	***1,385***
Water Management Strategies						
Water Conservation	28	83	138	197	232	274
Additional Water from DWU	103	345	496	706	857	1,111
Total Water Management Strategies	***131***	***428***	***634***	***903***	***1,089***	***1,385***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-253
Palmer

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,178**	**2,335**	**2,490**	**2,648**	**2,826**	**3,022**
Projected Water Demand						
Municipal Demand	271	282	293	303	320	342
Total Projected Demand	***271***	***282***	***293***	***303***	***320***	***342***
Currently Available Water Supplies						
Woodbine Aquifer	280	280	280	280	280	280
Total Current Supplies	***280***	***280***	***280***	***280***	***280***	***280***
Need (Demand - Current Supply)	***0***	***2***	***13***	***23***	***40***	***62***
Water Management Strategies						
Water Conservation	4	11	16	18	20	23
Rockett Special Utility District (TRWD)	0	0	0	5	20	39
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***11***	***16***	***23***	***40***	***62***
Reserve (Shortage)	**13**	**9**	**3**	**0**	**0**	**0**

Table C-254
Pantego

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**
Projected Water Demand						
Municipal Demand	701	693	685	685	672	672
Total Projected Demand	***701***	***693***	***685***	***685***	***672***	***672***
Currently Available Water Supplies						
Trinity Aquifer	771	771	771	771	771	771
Total Current Supplies	***771***	***771***	***771***	***771***	***771***	***771***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	11	20	25	27	29	31
Fort Worth (TRWD)	0	100	100	100	100	100
Arlington (TRWD)	0	100	100	100	100	100
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***11***	***220***	***225***	***227***	***229***	***231***
Reserve (Shortage)	**81**	**298**	**311**	**313**	**328**	**330**

Table C-255
Paradise

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**563**	**691**	**848**	**1,041**	**1,278**	**1,568**
Projected Water Demand						
Municipal Demand	73	89	109	134	165	202
Total Projected Demand	***73***	***89***	***109***	***134***	***165***	***202***
Currently Available Water Supplies						
Walnut Creek SUD (TRWD)	71	82	85	90	98	104
Total Current Supplies	***71***	***82***	***85***	***90***	***98***	***104***
Need (Demand - Current Supply)	***2***	***7***	***24***	***44***	***67***	***98***
Water Management Strategies						
Water Conservation	2	4	6	7	10	12
Additional Walnut Creek SUD	0	3	18	37	57	86
Total Water Management Strategies	***2***	***7***	***24***	***44***	***67***	***98***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-256
Parker

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,900**	**10,900**	**16,000**	**26,000**	**38,000**	**52,000**
Projected Water Demand						
Municipal Demand	1,494	4,078	5,950	9,669	14,132	19,338
Total Projected Demand	***1,494***	***4,078***	***5,950***	***9,669***	***14,132***	***19,338***
Currently Available Water Supplies						
North Texas Municipal Water District	1,482	3,319	4,206	6,141	8,116	10,322
Total Current Supplies	***1,482***	***3,319***	***4,206***	***6,141***	***8,116***	***10,322***
Need (Demand - Current Supply)	***12***	***759***	***1,744***	***3,528***	***6,016***	***9,016***
Water Management Strategies						
Water Conservation	12	184	331	616	1,020	1,559
Additional Water from NTMWD	0	575	1,413	2,912	4,996	7,457
Total Water Management Strategies	***12***	***759***	***1,744***	***3,528***	***6,016***	***9,016***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-257
Parker County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**422**	**422**	**422**	**422**	**422**	**422**
Currently Available Water Supplies						
Local Supplies	239	239	239	239	239	239
Direct Reuse	13	13	13	13	13	13
Trinity Aquifer	521	521	521	521	521	521
Total Current Supplies	***773***	***773***	***773***	***773***	***773***	***773***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**351**	**351**	**351**	**351**	**351**	**351**

Table C-258
Parker County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,856**	**1,856**	**1,856**	**1,856**	**1,856**	**1,856**
Currently Available Water Supplies						
Trinity Aquifer	213	213	213	213	213	213
Local Supplies	1,922	1,922	1,922	1,922	1,922	1,922
Total Current Supplies	***2,135***	***2,135***	***2,135***	***2,135***	***2,135***	***2,135***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**279**	**279**	**279**	**279**	**279**	**279**

Table C-259
Parker County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**779**	**879**	**974**	**1,068**	**1,150**	**1,248**
Currently Available Water Supplies						
Mineral Wells (Palo Pinto Co. WCID)	25	25	25	25	25	25
Weatherford (Lake Weatherford)	236	266	252	241	230	219
Trinity Aquifer	18	18	18	18	18	18
Weatherford (TRWD)	623	645	608	577	544	514
Total Current Supplies	***902***	***954***	***903***	***861***	***817***	***776***
Need (Demand - Current Supply)	***0***	***0***	***71***	***207***	***333***	***472***
Water Management Strategies						
Water Conservation	0	1	6	9	9	10
Additional water from Weatherford	0	0	65	198	324	462
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***1***	***71***	***207***	***333***	***472***
Reserve (Shortage)	**123**	**76**	**0**	**0**	**0**	**0**

Table C-260
Parker County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**5,868**	**1,702**	**1,692**	**1,702**	**1,712**	**1,720**
Currently Available Water Supplies						
Local supplies	20	20	20	20	20	20
Brazos River Authority	2,000	2,000	2,000	2,000	2,000	2,000
Trinity Aquifer	5,868	5,868	5,868	5,868	5,868	5,868
Total Current Supplies	***7,888***	***7,888***	***7,888***	***7,888***	***7,888***	***7,888***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**2,020**	**6,186**	**6,196**	**6,186**	**6,176**	**6,168**

Table C-261
Parker County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**37,741**	**37,332**	**38,304**	**38,662**	**36,500**	**34,303**
Projected Water Demand						
Municipal Demand	4,735	4,558	4,591	4,547	4,252	3,996
Total Projected Water Demand	***4,735***	***4,558***	***4,591***	***4,547***	***4,252***	***3,996***
Currently Available Water Supplies						
Trinity Aquifer	5,815	5,815	5,815	5,815	5,815	5,815
Other Aquifer	50	50	50	50	50	50
Mineral Wells (Palo Pinto Co. WCID)	474	479	479	479	479	479
Weatherford (Lake Weatherford)	0	86	74	64	53	43
Weatherford (TRWD)	0	145	129	113	95	81
Total Current Supplies	***6,339***	***6,575***	***6,547***	***6,521***	***6,492***	***6,468***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	44	166	233	254	253	251
New WTP and Water from BRA (Region G)	0	500	500	500	500	500
Additional Water from Weatherford	0	0	38	61	74	83
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***44***	***666***	***771***	***815***	***827***	***834***
Reserve (Shortage)	**1,648**	**2,683**	**2,727**	**2,789**	**3,067**	**3,306**

Table C-262
Parker County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**24**	**22**	**28**	**56**	**75**	**102**
Currently Available Water Supplies						
Weatherford (Lake Weatherford)	24	20	22	38	44	53
Total Current Supplies	***24***	***20***	***22***	***38***	***44***	***53***
Need (Demand - Current Supply)	***0***	***2***	***6***	***18***	***31***	***49***
Water Management Strategies						
Additional Weatherford	0	2	6	18	31	49
Total Water Management Strategies	***0***	***2***	***6***	***18***	***31***	***49***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-263
Payne Springs

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**730**	**781**	**831**	**882**	**945**	**1,024**
Projected Water Demand						
Municipal Demand	165	174	182	191	203	220
Total Projected Demand	***165***	***174***	***182***	***191***	***203***	***220***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	96	96	96	96	96	96
Total Current Supplies	***96***	***96***	***96***	***96***	***96***	***96***
Need (Demand - Current Supply)	***69***	***78***	***86***	***95***	***107***	***124***
Water Management Strategies						
Water Conservation	7	11	14	17	20	23
Carrizo-Wilcox Aquifer (new wells)	154	154	154	154	154	154
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***161***	***165***	***168***	***171***	***174***	***177***
Reserve (Shortage)	**92**	**87**	**82**	**76**	**67**	**53**

Table C-264
Pecan Hill

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**813**	**943**	**1,072**	**1,203**	**1,350**	**1,512**
Projected Water Demand						
Municipal Demand	160	183	205	228	254	285
Total Projected Demand	***160***	***183***	***205***	***228***	***254***	***285***
Currently Available Water Supplies						
Rockett SUD (TRWD and Midlothian)	160	183	205	228	254	285
Total Current Supplies	***160***	***183***	***205***	***228***	***254***	***285***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	5	7	9	11	13
Total Water Management Strategies	***1***	***5***	***7***	***9***	***11***	***13***
Reserve (Shortage)	**1**	**5**	**7**	**9**	**11**	**13**

Table C-265
Pelican Bay

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,830**	**2,050**	**2,277**	**2,515**	**2,801**	**3,139**
Projected Water Demand						
Municipal Demand	166	214	268	290	320	359
Total Projected Demand	***166***	***214***	***268***	***290***	***320***	***359***
Currently Available Water Supplies						
Trinity Aquifer	178	178	178	178	178	178
Total Current Supplies	***178***	***178***	***178***	***178***	***178***	***178***
Need (Demand - Current Supply)	***0***	***36***	***90***	***112***	***142***	***181***
Water Management Strategies						
Water Conservation	3	10	14	17	20	24
Azle (TRWD)	0	26	76	95	122	157
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***36***	***90***	***112***	***142***	***181***
Reserve (Shortage)	**15**	**0**	**0**	**0**	**0**	**0**

Table C-266
Pilot Point

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,047**	**7,067**	**12,000**	**13,290**	**14,100**	**15,000**
Projected Water Demand						
Municipal Demand	763	1,124	1,895	2,069	2,195	2,335
Total Projected Demand	***763***	***1,124***	***1,895***	***2,069***	***2,195***	***2,335***
Currently Available Water Supplies						
Trinity Aquifer	673	673	673	673	673	673
Total Current Supplies	***673***	***673***	***673***	***673***	***673***	***673***
Need (Demand - Current Supply)	***90***	***451***	***1,222***	***1,396***	***1,522***	***1,662***
Water Management Strategies						
Water Conservation	9	58	122	90	103	117
Upper Trinity Regional Water District	0	226	1,017	1,307	1,504	1,714
Additional Trinity Aquifer (new wells)	167	167	167	167	167	167
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***176***	***451***	***1,306***	***1,564***	***1,774***	***1,998***
Reserve (Shortage)	**86**	**0**	**84**	**168**	**252**	**336**

Table C-267
Plano

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**263,300**	**271,100**	**275,000**	**277,000**	**279,000**	**280,000**
Projected Water Demand						
Municipal Demand	75,208	76,828	77,318	77,570	77,818	78,097
Total Projected Demand	***75,208***	***76,828***	***77,318***	***77,570***	***77,818***	***78,097***
Currently Available Water Supplies						
North Texas Municipal Water District	74,702	62,531	54,657	49,267	44,693	41,687
Total Current Supplies	***74,702***	***62,531***	***54,657***	***49,267***	***44,693***	***41,687***
Need (Demand - Current Supply)	***506***	***14,297***	***22,661***	***28,303***	***33,125***	***36,410***
Water Management Strategies						
Water Conservation	506	3,307	4,365	5,053	5,724	6,395
Additional Water from NTMWD	0	10,990	18,296	23,250	27,401	30,015
Total Water Management Strategies	***506***	***14,297***	***22,661***	***28,303***	***33,125***	***36,410***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-268
Ponder

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,350**	**5,000**	**10,000**	**16,000**	**18,500**	**19,000**
Projected Water Demand						
Municipal Demand	250	913	1,815	2,903	3,357	3,448
Total Projected Demand	***250***	***913***	***1,815***	***2,903***	***3,357***	***3,448***
Currently Available Water Supplies						
Trinity Aquifer	359	359	359	359	359	359
Total Current Supplies	***359***	***359***	***359***	***359***	***359***	***359***
Need (Demand - Current Supply)	***0***	***554***	***1,456***	***2,544***	***2,998***	***3,089***
Water Management Strategies						
Water Conservation	5	58	135	240	307	344
Upper Trinity Regional Water District	0	559	1,414	2,426	2,843	2,926
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***617***	***1,549***	***2,666***	***3,150***	***3,270***
Reserve (Shortage)	**114**	**63**	**93**	**122**	**152**	**181**

Table C-269
Post Oak Bend City

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**659**	**1,075**	**1,754**	**2,862**	**4,671**	**7,623**
Projected Water Demand						
Municipal Demand	85	138	226	369	602	982
Total Projected Demand	***85***	***138***	***226***	***369***	***602***	***982***
Currently Available Water Supplies						
Rose Hill SUD (NTMWD)	83	112	160	234	346	524
Total Current Supplies	***83***	***112***	***160***	***234***	***346***	***524***
Need (Demand - Current Supply)	***2***	***26***	***66***	***135***	***256***	***458***
Water Management Strategies						
Water Conservation	2	6	12	20	35	61
Additional Water from Rose Hill SUD	0	20	54	115	221	397
Total Water Management Strategies	***2***	***26***	***66***	***135***	***256***	***458***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-270
Pottsboro

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,000**	**5,000**	**7,000**	**9,000**	**11,000**	**12,000**
Projected Water Demand						
Municipal Demand	504	851	1,176	1,492	1,811	1,976
Total Projected Demand	***504***	***851***	***1,176***	***1,492***	***1,811***	***1,976***
Currently Available Water Supplies						
Woodbine Aquifer	123	123	123	123	123	123
Denison	560	560	560	560	560	560
Total Current Supplies	***683***	***683***	***683***	***683***	***683***	***683***
Need (Demand - Current Supply)	***0***	***168***	***493***	***809***	***1,128***	***1,293***
Water Management Strategies						
Water Conservation	12	59	97	137	182	216
Grayson County Water Supply Project (North WTP)	0	280	600	870	1,150	1,275
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***12***	***339***	***697***	***1,007***	***1,332***	***1,491***
Reserve (Shortage)	**191**	**171**	**204**	**198**	**204**	**198**

Table C-271
Princeton

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**6,178**	**12,356**	**18,000**	**30,000**	**50,000**	**75,000**
Projected Water Demand						
Municipal Demand	1,329	2,657	3,871	6,452	10,753	16,130
Culleoka Water Supply Corporation	908	1,350	1,625	1,883	2,185	2,506
Total Projected Demand	***2,237***	***4,007***	***5,496***	***8,335***	***12,938***	***18,636***
Currently Available Water Supplies						
North Texas Municipal Water District	2,207	3,261	3,885	5,294	7,431	9,948
Total Current Supplies	***2,207***	***3,261***	***3,885***	***5,294***	***7,431***	***9,948***
Need (Demand - Current Supply)	***30***	***746***	***1,611***	***3,041***	***5,507***	***8,688***
Water Management Strategies						
Water Conservation	30	193	317	539	931	1,485
Additional Water from NTMWD		553	1,294	2,502	4,576	7,203
Total Water Management Strategies	***30***	***746***	***1,611***	***3,041***	***5,507***	***8,688***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-272
Prosper

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,000**	**20,000**	**35,000**	**50,000**	**70,000**	**75,000**
Projected Water Demand						
Municipal Demand	1,998	5,399	9,448	13,498	18,897	20,247
Total Projected Demand	***1,998***	***5,399***	***9,448***	***13,498***	***18,897***	***20,247***
Currently Available Water Supplies						
Woodbine Aquifer	605	605	605	605	605	605
North Texas Municipal Water District	1,948	2,636	4,007	4,972	7,287	7,205
Upper Trinity Regional Water District	98	773	917	1,069	940	897
Total Current Supplies	***2,651***	***4,014***	***5,529***	***6,646***	***8,832***	***8,707***
Need (Demand - Current Supply)	***0***	***1,385***	***3,919***	***6,852***	***10,065***	***11,540***
Water Management Strategies						
Water Conservation	50	344	701	1,119	1,723	2,021
Additional Water from NTMWD	0	259	961	1,738	3,678	4,272
Additional Water from UTRWD	0	1,387	2,862	4,600	5,269	5,852
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***50***	***1,990***	***4,524***	***7,457***	***10,670***	***12,145***
Reserve (Shortage)	**703**	**605**	**605**	**605**	**605**	**605**

Table C-273
R-C-H Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,630**	**5,280**	**5,400**	**5,500**	**5,500**	**5,500**
Projected Water Demand						
Municipal Demand	642	911	919	918	912	912
Total Projected Demand	***642***	***911***	***919***	***918***	***912***	***912***
Currently Available Water Supplies						
North Texas Municipal Water District	635	741	650	583	524	487
Total Current Supplies	***635***	***741***	***650***	***583***	***524***	***487***
Need (Demand - Current Supply)	***7***	***170***	***269***	***335***	***388***	***425***
Water Management Strategies						
Water Conservation	7	50	63	71	78	86
Direct Connection and Additional Water from NTMWD	0	120	206	264	310	339
Total Water Management Strategies	***7***	***170***	***269***	***335***	***388***	***425***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-274
Red Oak

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**12,500**	**21,000**	**26,000**	**28,000**	**30,000**	**32,000**
Projected Water Demand						
Municipal Demand	2,366	4,022	4,922	5,269	5,612	5,986
Total Projected Demand	***2,366***	***4,022***	***4,922***	***5,269***	***5,612***	***5,986***
Currently Available Water Supplies						
Woodbine Aquifer	605	605	605	605	605	605
Dallas Water Utilities	1,741	2,568	3,178	3,371	3,313	3,107
Rockett Special Utility District	118	188	202	192	184	177
Total Current Supplies	***2,464***	***3,361***	***3,985***	***4,168***	***4,102***	***3,889***
Need (Demand - Current Supply)	***0***	***661***	***937***	***1,101***	***1,510***	***2,097***
Water Management Strategies						
Water Conservation	27	205	314	382	454	534
Additional Water from Rockett SUD	0	13	44	71	97	122
Additional Water from DWU	0	443	579	648	959	1,441
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***27***	***661***	***937***	***1,101***	***1,510***	***2,097***
Reserve (Shortage)	**125**	**0**	**0**	**0**	**0**	**0**

Table C-275
Reno

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,569**	**2,676**	**2,763**	**2,838**	**2,918**	**3,005**
Projected Water Demand						
Municipal Demand	319	321	322	321	327	337
Total Projected Demand	***319***	***321***	***322***	***321***	***327***	***337***
Currently Available Water Supplies						
Trinity Aquifer	167	167	167	167	167	167
Springtown (TRWD)	74	71	61	52	48	44
Walnut Creek SUD (TRWD)	74	70	60	52	47	44
Total Current Supplies	***315***	***308***	***288***	***271***	***262***	***255***
Need (Demand - Current Supply)	***4***	***13***	***34***	***50***	***65***	***82***
Water Management Strategies						
Water Conservation	4	13	17	19	21	22
Additional Water from Springtown	0	0	8	16	22	30
Additional Water from Walnut Ck. SUD	0	0	9	15	22	30
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***13***	***34***	***50***	***65***	***82***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-276
Rhome

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,621**	**2,640**	**4,300**	**6,000**	**7,700**	**9,400**
Projected Water Demand						
Municipal Demand	590	955	1,541	2,151	2,760	3,369
Total Projected Demand	***590***	***955***	***1,541***	***2,151***	***2,760***	***3,369***
Currently Available Water Supplies						
Trinity Aquifer	243	243	243	243	243	243
Walnut Creek SUD (TRWD)	330	653	1,012	1,130	1,130	1,130
Total Current Supplies	***573***	***896***	***1,255***	***1,373***	***1,373***	***1,373***
Need (Demand - Current Supply)	***17***	***59***	***286***	***778***	***1,387***	***1,996***
Water Management Strategies						
Water Conservation	17	43	85	137	199	270
Additional Water from Walnut Ck. SUD	0	16	201	641	1,188	1,726
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***17***	***59***	***286***	***778***	***1,387***	***1,996***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-277
Rice

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**954**	**1,123**	**1,299**	**1,490**	**1,718**	**1,998**
Projected Water Demand						
Municipal Demand	229	265	304	347	398	463
Total Projected Demand	***229***	***265***	***304***	***347***	***398***	***463***
Currently Available Water Supplies						
Rice Water Supply Corporation (Ennis and Corsicana)	229	265	285	315	347	384
Total Current Supplies	***229***	***265***	***285***	***315***	***347***	***384***
Need (Demand - Current Supply)	***0***	***0***	***19***	***32***	***51***	***79***
Water Management Strategies						
Water Conservation	2	7	10	20	26	34
Additional Water from Rice WSC	0	0	9	12	25	45
Total Water Management Strategies	***2***	***7***	***19***	***32***	***51***	***79***
Reserve (Shortage)	**2**	**7**	**0**	**0**	**0**	**0**

Table C-278
Rice Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside of Rice	7,667	9,734	11,867	14,161	16,872	20,152
In Rice	954	1,123	1,299	1,490	1,718	1,998
Total Population Served	**8,621**	**10,857**	**13,166**	**15,651**	**18,590**	**22,150**
Projected Water Demand						
Outside of Rice	945	1,167	1,409	1,650	1,966	2,347
In Rice	229	265	304	347	398	463
Total Projected Demand	***1,174***	***1,432***	***1,713***	***1,997***	***2,364***	***2,810***
Currently Available Water Supplies						
Corsicana	1,174	1,432	1,608	1,813	2,060	2,329
Ennis	43	35	28	22	17	13
Total Current Supplies	***1,217***	***1,467***	***1,636***	***1,835***	***2,077***	***2,342***
Need (Demand - Current Supply)	***0***	***0***	***77***	***162***	***287***	***468***
Water Management Strategies						
Water Conservation	15	55	84	114	145	184
Additional Water from Corsicana	0	0	0	20	109	247
Additional Water from Ennis	7	15	22	28	33	37
Total Water Management Strategies	***22***	***70***	***106***	***162***	***287***	***468***
Reserve (Shortage)	**65**	**105**	**29**	**0**	**0**	**0**

Table C-279
Richardson

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**102,880**	**116,000**	**116,000**	**116,000**	**116,000**	**116,000**
Projected Water Demand						
Municipal Demand	32,383	36,123	35,993	35,602	35,343	35,343
Total Projected Demand	***32,383***	***36,123***	***35,993***	***35,602***	***35,343***	***35,343***
Currently Available Water Supplies						
North Texas Municipal Water District	31,797	29,401	25,444	22,612	20,299	18,866
Total Current Supplies	***31,797***	***29,401***	***25,444***	***22,612***	***20,299***	***18,866***
Need (Demand - Current Supply)	***586***	***6,722***	***10,549***	***12,990***	***15,044***	***16,477***
Water Management Strategies						
Water Conservation	586	2,010	2,531	2,814	3,091	3,386
Additional Water from NTMWD	0	4,712	8,018	10,176	11,953	13,091
Total Water Management Strategies	***586***	***6,722***	***10,549***	***12,990***	***15,044***	***16,477***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-280
Richland Hills

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,400**	**9,000**	**9,600**	**10,300**	**10,700**	**10,850**
Projected Water Demand						
Municipal Demand	1,327	1,381	1,441	1,511	1,558	1,580
Total Projected Demand	***1,327***	***1,381***	***1,441***	***1,511***	***1,558***	***1,580***
Currently Available Water Supplies						
Trinity Aquifer	462	462	462	462	462	462
Fort Worth (TRWD)	854	844	764	708	648	576
Total Current Supplies	***1,316***	***1,306***	***1,226***	***1,170***	***1,110***	***1,038***
Need (Demand - Current Supply)	***11***	***75***	***215***	***341***	***448***	***542***
Water Management Strategies						
Water Conservation	11	39	56	65	73	79
Additional Water from Fort Worth	0	36	159	276	375	463
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***11***	***75***	***215***	***341***	***448***	***542***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-281
River Oaks

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,100**	**7,100**	**7,100**	**7,100**	**7,100**	**7,100**
Projected Water Demand						
Municipal Demand	1,010	986	954	931	923	923
Total Projected Demand	***1,010***	***986***	***954***	***931***	***923***	***923***
Currently Available Water Supplies						
Tarrant Regional Water District	1,000	905	744	628	545	475
Total Current Supplies	***1,000***	***905***	***744***	***628***	***545***	***475***
Need (Demand - Current Supply)	***10***	***81***	***210***	***303***	***378***	***448***
Water Management Strategies						
Water Conservation	10	34	45	49	52	55
Additional Water from TRWD	0	47	165	254	326	393
Total Water Management Strategies	***10***	***81***	***210***	***303***	***378***	***448***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-282
Roanoke

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,000**	**10,080**	**13,160**	**16,240**	**21,615**	**26,197**
Projected Water Demand						
Municipal Demand	1,756	2,732	3,538	4,348	5,787	7,013
Total Projected Demand	***1,756***	***2,732***	***3,538***	***4,348***	***5,787***	***7,013***
Currently Available Water Supplies						
Trinity Aquifer	258	258	258	258	258	258
Fort Worth (TRWD)	1,482	2,271	2,558	2,760	3,267	3,481
Total Current Supplies	***1,740***	***2,529***	***2,816***	***3,018***	***3,525***	***3,739***
Need (Demand - Current Supply)	***16***	***203***	***722***	***1,330***	***2,262***	***3,274***
Water Management Strategies						
Water Conservation	16	124	208	296	441	594
Additional Water from Fort Worth	0	79	514	1,034	1,821	2,680
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***16***	***203***	***722***	***1,330***	***2,262***	***3,274***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-283
Rockett Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (Outside of Cities)	**35,657**	**46,460**	**58,744**	**68,833**	**74,313**	**74,954**
Projected Water Demand						
Municipal Demand	4,713	5,985	7,436	8,636	9,240	9,320
Areas Inside Cities and Customers	1,297	3,606	4,511	4,578	4,690	4,811
Total Projected Demand	***6,010***	***9,591***	***11,947***	***13,214***	***13,930***	***14,131***
Currently Available Water Supplies						
Midlothian	1,926	2,242	2,242	2,242	2,242	2,242
Trinity River Authority (TRWD), Capped by Water Treatment Plant Capacity	4,356	5,600	5,600	5,600	5,600	5,600
Total Current Supplies	***6,282***	***7,842***	***7,842***	***7,842***	***7,842***	***7,842***
Need (Demand - Current Supply)	***0***	***1,749***	***4,105***	***5,372***	***6,088***	***6,289***
Water Management Strategies						
Water Conservation	110	522	784	931	1,044	1,124
Additional Water from Trinity River Authority (with WTP Expansions)	0	1,227	3,321	4,441	5,044	5,165
Total Water Management Strategies	***110***	***1,749***	***4,105***	***5,372***	***6,088***	***6,289***
Reserve (Shortage)	**382**	**0**	**0**	**0**	**0**	**0**

Note: See Appendix H for details of demands.

Table C-284
Rockwall

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population (Outside of Cities)	**35,657**	**46,460**	**58,744**	**68,833**	**74,313**	**74,954**
Projected Water Demand						
Municipal Demand	9,855	17,597	21,596	25,162	25,826	25,826
Manufacturing and Customer Demand	1,698	303	305	304	306	308
Total Projected Demand	***11,553***	***17,900***	***21,901***	***25,466***	***26,132***	***26,134***
Currently Available Water Supplies						
North Texas Municipal Water District	11,444	14,568	15,481	16,174	15,009	13,950
Total Current Supplies	***11,444***	***14,568***	***15,481***	***16,174***	***15,009***	***13,950***
Need (Demand - Current Supply)	***109***	***3,332***	***6,420***	***9,292***	***11,123***	***12,184***
Water Management Strategies						
Water Conservation	109	827	1,271	1,696	1,960	2,177
Additional Water from NTMWD		2,505	5,149	7,596	9,163	10,007
Total Water Management Strategies	***109***	***3,332***	***6,420***	***9,292***	***11,123***	***12,184***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Appendix H for details of demands.

Table C-285
Rockwall County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,125**	**1,125**	**1,125**	**1,125**	**1,125**	**1,125**
Currently Available Water Supplies						
North Texas Municipal Water District	62	27	0	0	0	0
Dallas Water Utilities	255	208	199	187	172	151
Direct Reuse	784	784	784	784	784	784
Total Current Supplies	***1,101***	***1,019***	***983***	***971***	***956***	***935***
Need (Demand - Current Supply)	***24***	***106***	***142***	***154***	***169***	***190***
Water Management Strategies						
Water Conservation	2	37	71	89	106	123
Additional Water from DWU	22	69	71	65	63	67
Total Water Management Strategies	***24***	***106***	***142***	***154***	***169***	***190***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-286
Rockwall County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**131**	**131**	**131**	**131**	**131**	**131**
Currently Available Water Supplies						
Other Aquifer	21	21	21	21	21	21
Local Supplies	168	168	168	168	168	168
Total Current Supplies	***189***	***189***	***189***	***189***	***189***	***189***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**58**	**58**	**58**	**58**	**58**	**58**

Table C-287
Rockwall County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**20**	**23**	**26**	**29**	**32**	**35**
Currently Available Water Supplies						
North Texas Municipal Water District (through Rockwall and Royse City)	20	18	18	19	18	18
Total Current Supplies	***20***	***18***	***18***	***19***	***18***	***18***
Need (Demand - Current Supply)	***0***	***5***	***8***	***10***	***14***	***17***
Water Management Strategies						
Water Conservation	0	0	1	1	1	1
Additional water from NTMWD	0	5	7	9	13	16
Total Water Management Strategies	***0***	***5***	***8***	***10***	***14***	***17***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-288
Rockwall County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**33**	**33**	**33**	**33**	**33**	**33**
Currently Available Water Supplies						
Local supplies	33	33	33	33	33	33
Total Current Supplies	***33***	***33***	***33***	***33***	***33***	***33***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-289
Rockwall County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,816**	**1,816**	**1,816**	**1,816**	**1,816**	**1,816**
Projected Water Demand						
Municipal Demand	385	385	385	383	383	383
Total Projected Water Demand	***385***	***385***	***385***	***383***	***383***	***383***
Currently Available Water Supplies						
Other Aquifer	187	187	187	187	187	187
North Texas Municipal Water District	381	313	273	243	220	204
Total Current Supplies	***568***	***500***	***460***	***430***	***407***	***391***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	4	9	13	14	15	17
Additional Water from NTMWD	0	63	99	126	148	162
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***72***	***112***	***140***	***163***	***179***
Reserve (Shortage)	**187**	**187**	**187**	**187**	**187**	**187**

Table C-290
Rockwall County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**0**	**0**	**0**	**0**	**0**	**0**
Currently Available Water Supplies						
None	0	0	0	0	0	0
Total Current Supplies	***0***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
None	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-291
Rowlett

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**59,271**	**70,856**	**80,178**	**87,714**	**93,811**	**98,747**
Projected Water Demand						
Municipal Demand	11,619	13,731	15,447	16,801	17,759	18,694
Total Projected Demand	***11,619***	***13,731***	***15,447***	***16,801***	***17,759***	***18,694***
Currently Available Water Supplies						
North Texas Municipal Water District	11,504	11,176	10,920	10,671	10,200	9,979
Total Current Supplies	***11,504***	***11,176***	***10,920***	***10,671***	***10,200***	***9,979***
Need (Demand - Current Supply)	***115***	***2,555***	***4,527***	***6,130***	***7,559***	***8,715***
Water Management Strategies						
Water Conservation	115	721	1,033	1,273	1,499	1,733
Additional Water from NTMWD	0	1,834	3,494	4,857	6,060	6,982
Total Water Management Strategies	***115***	***2,555***	***4,527***	***6,130***	***7,559***	***8,715***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-292
Royse City

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**12,000**	**21,000**	**28,446**	**37,184**	**45,646**	**55,000**
Projected Water Demand						
Municipal Demand	2,501	4,422	5,959	7,789	9,561	11,521
Total Projected Demand	***2,501***	***4,422***	***5,959***	***7,789***	***9,561***	***11,521***
Currently Available Water Supplies						
North Texas Municipal Water District	2,470	3,599	4,212	4,947	5,491	6,150
Total Current Supplies	***2,470***	***3,599***	***4,212***	***4,947***	***5,491***	***6,150***
Need (Demand - Current Supply)	***31***	***823***	***1,747***	***2,842***	***4,070***	***5,371***
Water Management Strategies						
Water Conservation	31	230	381	567	776	1,031
Additional Water from NTMWD	0	593	1,366	2,275	3,294	4,340
Total Water Management Strategies	***31***	***823***	***1,747***	***2,842***	***4,070***	***5,371***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-293
Runaway Bay

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,411**	**1,720**	**2,097**	**2,400**	**2,700**	**3,000**
Projected Water Demand						
Municipal Demand	296	356	430	489	547	608
Total Projected Demand	***296***	***356***	***430***	***489***	***547***	***608***
Currently Available Water Supplies						
Tarrant Regional Water District	293	327	335	330	323	313
Total Current Supplies	***293***	***327***	***335***	***330***	***323***	***313***
Need (Demand - Current Supply)	***3***	***29***	***95***	***159***	***224***	***295***
Water Management Strategies						
Water Conservation	3	16	25	32	41	51
Additional Water from TRWD and Water Treatment Plant Expansion	0	13	70	127	183	244
Total Water Management Strategies	***3***	***29***	***95***	***159***	***224***	***295***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-294
Sachse

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**20,560**	**23,700**	**27,000**	**27,000**	**27,000**	**27,000**
Projected Water Demand						
Municipal Demand	4,399	5,124	5,806	5,746	5,746	5,746
Total Projected Demand	***4,399***	***5,124***	***5,806***	***5,746***	***5,746***	***5,746***
Currently Available Water Supplies						
North Texas Municipal Water District	4,351	4,170	4,104	3,649	3,300	3,067
Total Current Supplies	***4,351***	***4,170***	***4,104***	***3,649***	***3,300***	***3,067***
Need (Demand - Current Supply)	***48***	***954***	***1,702***	***2,097***	***2,446***	***2,679***
Water Management Strategies						
Water Conservation	48	298	461	510	558	606
Additional Water from NTMWD	0	656	1,241	1,587	1,888	2,073
Total Water Management Strategies	***48***	***954***	***1,702***	***2,097***	***2,446***	***2,679***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-295
Saginaw

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**18,813**	**22,803**	**25,711**	**27,829**	**29,373**	**30,499**
Projected Water Demand						
Municipal Demand	3,161	3,755	4,176	4,489	4,705	4,885
Total Projected Demand	***3,161***	***3,755***	***4,176***	***4,489***	***4,705***	***4,885***
Currently Available Water Supplies						
Fort Worth (TRWD)	3,126	3,447	3,257	3,030	2,780	2,517
Total Current Supplies	***3,126***	***3,447***	***3,257***	***3,030***	***2,780***	***2,517***
Need (Demand - Current Supply)	***35***	***308***	***919***	***1,459***	***1,925***	***2,368***
Water Management Strategies						
Water Conservation	35	205	292	355	412	469
Additional Water from Fort Worth	0	103	627	1,104	1,513	1,899
Total Water Management Strategies	***35***	***308***	***919***	***1,459***	***1,925***	***2,368***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-296
Saint Paul

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,000**	**2,500**	**5,000**	**8,000**	**9,500**	**10,000**
Projected Water Demand						
Municipal Demand	192	468	930	1,479	1,756	1,848
Total Projected Demand	***192***	***468***	***930***	***1,479***	***1,756***	***1,848***
Currently Available Water Supplies						
North Texas Municipal Water District	190	381	657	939	1,009	986
Total Current Supplies	***190***	***381***	***657***	***939***	***1,009***	***986***
Need (Demand - Current Supply)	***2***	***87***	***273***	***540***	***747***	***862***
Water Management Strategies						
Water Conservation	2	24	58	106	140	163
Additional Water from NTMWD	0	63	215	434	607	699
Total Water Management Strategies	***2***	***87***	***273***	***540***	***747***	***862***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-297
Sanctuary

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**715**	**1,675**	**2,435**	**2,875**	**3,305**	**3,708**
Projected Water Demand						
Municipal Demand	92	216	314	370	426	478
Total Projected Demand	***92***	***216***	***314***	***370***	***426***	***478***
Currently Available Water Supplies						
Walnut Ck. Special Utility District (TRWD)	90	198	245	250	252	246
Total Current Supplies	***90***	***198***	***245***	***250***	***252***	***246***
Need (Demand - Current Supply)	***2***	***18***	***69***	***120***	***174***	***232***
Water Management Strategies						
Water Conservation	2	10	16	20	25	29
Additional Water from Walnut Ck. SUD	0	8	53	100	149	203
Total Water Management Strategies	***2***	***18***	***69***	***120***	***174***	***232***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-298
Sanger

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,750**	**12,750**	**17,947**	**21,400**	**23,998**	**25,000**
Projected Water Demand						
Municipal Demand	1,302	2,114	2,935	3,476	3,871	4,033
Total Projected Demand	***1,302***	***2,114***	***2,935***	***3,476***	***3,871***	***4,033***
Currently Available Water Supplies						
Trinity Aquifer	543	543	543	543	543	543
Bolivar Water Supply Corporation (UTRWD)	561	561	561	561	534	497
Total Current Supplies	***1,104***	***1,104***	***1,104***	***1,104***	***1,077***	***1,040***
Need (Demand - Current Supply)	***198***	***1,010***	***1,831***	***2,372***	***2,794***	***2,993***
Water Management Strategies						
Water Conservation	41	123	207	276	342	390
Additional Water from Bolivar WSC	212	942	1,728	2,249	2,653	2,853
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***253***	***1,065***	***1,935***	***2,525***	***2,995***	***3,243***
Reserve (Shortage)	**55**	**55**	**104**	**153**	**201**	**250**

Table C-299
Sansom Park Village

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,376**	**4,527**	**4,644**	**4,734**	**4,804**	**4,857**
Projected Water Demand						
Municipal Demand	603	609	609	605	608	615
Total Projected Demand	***603***	***609***	***609***	***605***	***608***	***615***
Currently Available Water Supplies						
Trinity Aquifer	552	552	552	552	552	552
Fort Worth (TRWD)	45	52	44	36	33	32
Total Current Supplies	***597***	***604***	***596***	***588***	***585***	***584***
Need (Demand - Current Supply)	***6***	***5***	***13***	***17***	***23***	***31***
Water Management Strategies						
Water Conservation	6	22	30	33	35	38
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***22***	***30***	***33***	***35***	***38***
Reserve (Shortage)	**0**	**17**	**17**	**16**	**12**	**7**

Table C-300
Sardis-Lone Elm Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**12,036**	**16,036**	**20,036**	**20,036**	**20,036**	**20,036**
Projected Water Demand						
Municipal Demand	2,508	3,305	4,084	4,040	4,017	4,017
Total Projected Demand	***2,508***	***3,305***	***4,084***	***4,040***	***4,017***	***4,017***
Currently Available Water Supplies						
Trinity Aquifer	1,150	1,150	1,150	1,150	1,150	1,150
Total Current Supplies	***1,150***	***1,150***	***1,150***	***1,150***	***1,150***	***1,150***
Need (Demand - Current Supply)	***1,358***	***2,155***	***2,934***	***2,890***	***2,867***	***2,867***
Water Management Strategies						
Water Conservation	100	212	313	346	378	411
Rockett Special Utility District (TRWD)	0	1,943	2,621	2,544	2,489	2,456
Overdraft Trinity Aquifer (existing wells)	1,258	0	0	0	0	0
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1,358***	***2,155***	***2,934***	***2,890***	***2,867***	***2,867***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-301
Savoy

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**869**	**889**	**910**	**930**	**952**	**974**
Projected Water Demand						
Municipal Demand	108	108	106	105	107	109
Total Projected Demand	***108***	***108***	***106***	***105***	***107***	***109***
Currently Available Water Supplies						
Woodbine Aquifer	119	119	119	119	119	119
Total Current Supplies	***119***	***119***	***119***	***119***	***119***	***119***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	1	4	5	6	6	7
Fannin County Water Supply Project	0	7	3	1	3	5
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***1***	***11***	***8***	***7***	***9***	***12***
Reserve (Shortage)	**12**	**22**	**21**	**21**	**21**	**22**

Table C-302
Scurry

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**678**	**789**	**918**	**1,068**	**1,242**	**1,445**
Projected Water Demand						
Municipal Demand	87	102	118	138	160	186
Total Projected Demand	***87***	***102***	***118***	***138***	***160***	***186***
Currently Available Water Supplies						
Gastonia-Scurry WSC (NTMWD)	85	83	83	88	92	99
Total Current Supplies	***85***	***83***	***83***	***88***	***92***	***99***
Need (Demand - Current Supply)	***2***	***19***	***35***	***50***	***68***	***87***
Water Management Strategies						
Water Conservation	2	4	6	8	9	11
Additional Water from Gastonia-Scurry WSC	0	15	29	42	59	76
Total Water Management Strategies	***2***	***19***	***35***	***50***	***68***	***87***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-303
Seagoville

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population In City Only)	**4,854**	**5,400**	**6,000**	**6,600**	**7,200**	**7,500**
Projected Water Demand						
Municipal Demand	2,085	2,542	3,019	3,480	3,890	4,191
Customer Demand	744	1,378	1,848	2,372	3,044	3,889
Total Projected Demand	***2,829***	***3,920***	***4,867***	***5,852***	***6,934***	***8,080***
Currently Available Water Supplies						
Dallas Water Utilities	2,601	2,944	3,491	3,941	4,308	4,414
Total Current Supplies	***2,601***	***2,944***	***3,491***	***3,941***	***4,308***	***4,414***
Need (Demand - Current Supply)	***228***	***976***	***1,376***	***1,911***	***2,626***	***3,666***
Water Management Strategies						
Water Conservation	73	142	237	323	425	550
Additional Water from DWU	155	834	1,139	1,588	2,201	3,116
Total Water Management Strategies	***228***	***976***	***1,376***	***1,911***	***2,626***	***3,666***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Appendix H for details on demands.

Table C-304
Seven Points

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,402**	**1,681**	**1,956**	**2,238**	**2,582**	**3,016**
Projected Water Demand						
Municipal Demand	188	222	254	288	330	385
Total Projected Demand	***188***	***222***	***254***	***288***	***330***	***385***
Currently Available Water Supplies						
West Cedar Creek Municipal Utility District (TRWD)	186	204	198	194	195	198
Total Current Supplies	***186***	***204***	***198***	***194***	***195***	***198***
Need (Demand - Current Supply)	***2***	***18***	***56***	***94***	***135***	***187***
Water Management Strategies						
Water Conservation	2	8	12	15	18	23
Additional Water from WCCMUD	0	10	44	79	117	164
Total Water Management Strategies	***2***	***18***	***56***	***94***	***135***	***187***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-305
Shady Shores

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,474**	**3,228**	**3,936**	**3,936**	**3,936**	**3,936**
Projected Water Demand						
Municipal Demand	357	510	613	608	604	604
Total Projected Demand	***357***	***510***	***613***	***608***	***604***	***604***
Currently Available Water Supplies						
Lake Cities Municipal Utility Authority (UTRWD and Groundwater)	373	242	207	169	141	123
Total Current Supplies	***373***	***242***	***207***	***169***	***141***	***123***
Need (Demand - Current Supply)	***0***	***268***	***406***	***439***	***463***	***481***
Water Management Strategies						
Water Conservation	5	28	27	29	31	33
Additional Water from Lake Cities MUA	0	240	379	410	432	448
Total Water Management Strategies	***5***	***268***	***406***	***439***	***463***	***481***
Reserve (Shortage)	**21**	**0**	**0**	**0**	**0**	**0**

Table C-306
Sherman

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**39,300**	**44,400**	**50,600**	**57,700**	**67,000**	**80,000**
Projected Water Demand						
Municipal Demand	10,081	11,240	12,696	14,348	16,586	19,804
Manufacturing, Steam Electric, and Customer Demand	10,949	12,432	13,973	15,494	16,894	18,700
Total Projected Demand	***21,030***	***23,672***	***26,669***	***29,842***	***33,480***	***38,504***
Currently Available Water Supplies						
Trinity Aquifer	4,083	4,083	4,083	4,083	4,083	4,083
Woodbine Aquifer	3,463	3,463	3,463	3,463	3,463	3,463
Greater Texoma Utility Authority (Lake Texoma, Treated, limited by WTP)	8,000	8,000	8,000	8,000	8,000	8,000
Greater Texoma Utility Authority (Lake Texoma, Raw)	5,600	5,600	5,600	5,600	5,600	5,600
Total Current Supplies	***21,146***	***21,146***	***21,146***	***21,146***	***21,146***	***21,146***
Need (Demand - Current Supply)	***0***	***2,526***	***5,523***	***8,696***	***12,334***	***17,358***
Water Management Strategies						
Water Conservation	67	217	333	958	1,513	1,968
Grayson County Water Supply Projects (WTP Expansions and water from GTUA)	0	5,600	8,400	8,400	14,000	19,600
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***67***	***5,817***	***8,733***	***9,358***	***15,513***	***21,568***
Reserve (Shortage)	**183**	**3,291**	**3,210**	**662**	**3,179**	**4,210**

Table C-307
South Grayson Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**2,700**	**3,450**	**4,100**	**4,825**	**5,650**	**6,675**
Projected Water Demand						
Municipal Demand	381	479	561	654	760	897
Total Projected Demand	***381***	***479***	***561***	***654***	***760***	***897***
Currently Available Water Supplies						
Trinity Aquifer	360	360	360	360	360	360
Woodbine Aquifer	360	360	360	360	360	360
Total Current Supplies	***720***	***720***	***720***	***720***	***720***	***720***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***40***	***177***
Water Management Strategies						
Water Conservation	6	22	31	39	48	60
Collin-Grayson Municipal Alliance (GTUA and NTMWD)	0	100	100	100	100	100
Grayson County Water Supply Project (GTUA - Northwest WTP)	0	0	0	75	175	300
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***122***	***131***	***214***	***323***	***460***
Reserve (Shortage)	**345**	**363**	**290**	**280**	**283**	**283**

Table C-308
Southlake

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Projected Population	**28,019**	**29,636**	**30,107**	**31,924**	**34,188**	**36,000**
Projected Water Demand						
Municipal Demand	9,321	9,826	9,949	10,514	11,259	11,855
Total Projected Demand	***9,321***	***9,826***	***9,949***	***10,514***	***11,259***	***11,855***
Currently Available Water Supplies						
Fort Worth (TRWD)	9,068	9,015	7,756	7,093	6,651	6,107
Total Current Supplies	***9,068***	***9,015***	***7,756***	***7,093***	***6,651***	***6,107***
Need (Demand - Current Supply)	***253***	***811***	***2,193***	***3,421***	***4,608***	***5,748***
Water Management Strategies						
Water Conservation	253	435	558	681	823	965
Additional Water from Fort Worth	0	376	1,635	2,740	3,785	4,783
Total Water Management Strategies	***253***	***811***	***2,193***	***3,421***	***4,608***	***5,748***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-309
Southmayd

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,200**	**1,500**	**2,000**	**3,000**	**4,500**	**5,600**
Projected Water Demand						
Municipal Demand	160	197	258	380	565	703
Total Projected Demand	***160***	***197***	***258***	***380***	***565***	***703***
Currently Available Water Supplies						
Trinity Aquifer	130	130	130	130	130	130
Monarch Water Company (Woodbine Aquifer)	60	0	0	0	0	0
Total Current Supplies	***190***	***130***	***130***	***130***	***130***	***130***
Need (Demand - Current Supply)	***0***	***67***	***128***	***250***	***435***	***573***
Water Management Strategies						
Water Conservation	2	8	13	21	33	43
Woodbine Aquifer (new well)	0	60	60	60	60	60
Grayson County Water Supply Project (North WTP)	0	40	100	220	400	525
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***2***	***108***	***173***	***301***	***493***	***628***
Reserve (Shortage)	**32**	**41**	**45**	**51**	**58**	**55**

Table C-310
Southwest Fannin County Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**7,491**	**8,940**	**9,947**	**10,852**	**11,657**	**12,945**
Projected Water Demand						
Municipal Demand	722	1,042	1,192	1,288	1,371	1,466
Total Projected Demand	***722***	***1,042***	***1,192***	***1,288***	***1,371***	***1,466***
Currently Available Water Supplies						
Woodbine Aquifer	803	803	803	803	803	803
Total Current Supplies	***803***	***803***	***803***	***803***	***803***	***803***
Need (Demand - Current Supply)	***0***	***239***	***389***	***485***	***568***	***663***
Water Management Strategies						
Water Conservation	15	44	62	72	82	93
Fannin County Water Supply Project	0	338	627	868	942	1,027
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***15***	***382***	***689***	***940***	***1,024***	***1,120***
Reserve (Shortage)	**96**	**143**	**300**	**455**	**456**	**457**

Table C-311
Springtown

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**3,000**	**4,000**	**5,000**	**6,000**	**7,000**	**8,000**
Projected Water Demand						
Municipal Demand	504	659	807	961	1,113	1,272
Sales to Reno	74	71	69	68	70	74
Total Projected Demand	***578***	***730***	***876***	***1,029***	***1,183***	***1,346***
Currently Available Water Supplies						
Trinity Aquifer	52	52	52	52	52	52
Tarrant Regional Water District	333	459	506	542	566	579
Total Current Supplies	***385***	***511***	***558***	***594***	***618***	***631***
Need (Demand - Current Supply)	***193***	***219***	***318***	***435***	***565***	***715***
Water Management Strategies						
Water Conservation	23	55	79	112	127	156
Trinity Aquifer - new wells	184	184	184	184	184	184
Additional Water from TRWD with New WTP and Expansions	0	0	55	139	254	375
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***207***	***239***	***318***	***435***	***565***	***715***
Reserve (Shortage)	**14**	**20**	**0**	**0**	**0**	**0**

Table C-312
Sunnyvale

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,000**	**7,000**	**9,000**	**11,000**	**13,000**	**13,300**
Projected Water Demand						
Municipal Demand	1,770	2,454	3,135	3,820	4,514	4,618
Total Projected Demand	***1,770***	***2,454***	***3,135***	***3,820***	***4,514***	***4,618***
Currently Available Water Supplies						
North Texas Municipal Water District	1,756	1,997	2,216	2,426	2,593	2,465
Total Current Supplies	***1,756***	***1,997***	***2,216***	***2,426***	***2,593***	***2,465***
Need (Demand - Current Supply)	***14***	***457***	***919***	***1,394***	***1,921***	***2,153***
Water Management Strategies						
Water Conservation	14	108	174	246	328	375
Additional Water from NTMWD	0	349	745	1,148	1,593	1,778
Total Water Management Strategies	***14***	***457***	***919***	***1,394***	***1,921***	***2,153***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-313
Talty

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,800**	**3,832**	**5,256**	**6,834**	**8,788**	**11,211**
Projected Water Demand						
Municipal Demand	813	1,717	2,337	3,024	3,878	4,948
Total Projected Demand	***813***	***1,717***	***2,337***	***3,024***	***3,878***	***4,948***
Currently Available Water Supplies						
North Texas Municipal Water District (through Gastonia-Scurry SUD and Talty WSC [Kaufman Co. Other])	808	1,397	1,652	1,921	2,227	2,641
Total Current Supplies	***808***	***1,397***	***1,652***	***1,921***	***2,227***	***2,641***
Need (Demand - Current Supply)	***5***	***320***	***685***	***1,103***	***1,651***	***2,307***
Water Management Strategies						
Water Conservation	5	66	114	172	254	365
Additional Water from NTMWD	0	254	571	931	1,397	1,942
Total Water Management Strategies	***5***	***320***	***685***	***1,103***	***1,651***	***2,307***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-314
Tarrant County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**8,417**	**8,417**	**8,417**	**8,417**	**8,417**	**8,417**
Currently Available Water Supplies						
Local Supplies	549	549	549	549	549	549
Trinity Aquifer	15	15	15	15	15	15
Indirect Reuse (DCPCMUD through Grapevine)	1,121	1,121	1,121	1,121	1,121	1,121
Direct Reuse (Azle)	300	300	300	300	300	300
Tarrant Regional Water District	5,518	3,863	3,282	2,840	2,487	2,168
Direct Reuse (Fort Worth)	897	897	897	897	897	897
Total Current Supplies	***8,400***	***6,745***	***6,164***	***5,722***	***5,369***	***5,050***
Need (Demand - Current Supply)	***17***	***1,672***	***2,253***	***2,695***	***3,048***	***3,367***
Water Management Strategies						
Water Conservation	17	274	527	660	785	910
Additional Water from TRWD	0	71	399	708	936	1,130
Additional Water from Reuse	0	1,327	1,327	1,327	1,327	1,327
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***17***	***1,672***	***2,253***	***2,695***	***3,048***	***3,367***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-315
Tarrant County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**803**	**803**	**803**	**803**	**803**	**803**
Currently Available Water Supplies						
Trinity Aquifer	361	361	361	361	361	361
Local Supplies	442	442	442	442	442	442
Total Current Supplies	***803***	***803***	***803***	***803***	***803***	***803***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-316
Tarrant County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**17,258**	**20,444**	**23,630**	**26,924**	**29,919**	**32,457**
Currently Available Water Supplies						
Tarrant Regional Water District (through multiple suppliers)	17,258	18,766	18,430	18,171	17,680	16,724
Total Current Supplies	***17,258***	***18,766***	***18,430***	***18,171***	***17,680***	***16,724***
Need (Demand - Current Supply)	***0***	***1,678***	***5,200***	***8,753***	***12,239***	***15,733***
Water Management Strategies						
Water Conservation	0	35	413	630	711	784
Additional water from TRWD	0	1,643	4,787	8,123	11,528	14,949
Total Water Management Strategies	***0***	***1,678***	***5,200***	***8,753***	***12,239***	***15,733***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-317
Tarrant County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,073**	**904**	**939**	**974**	**1,009**	**1,036**
Currently Available Water Supplies						
Local supplies	342	342	342	342	342	342
Tarrant Regional Water District	536	415	366	329	298	267
Trinity Aquifer	1,073	1,073	1,073	1,073	1,073	1,073
Total Current Supplies	***1,951***	***1,830***	***1,781***	***1,744***	***1,713***	***1,682***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**878**	**926**	**842**	**770**	**704**	**646**

Table C-318
Tarrant County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**23,911**	**23,911**	**23,911**	**23,911**	**23,911**	**23,911**
Projected Water Demand						
Municipal Demand	3,482	3,402	3,348	3,268	3,241	3,241
Total Projected Water Demand	***3,482***	***3,402***	***3,348***	***3,268***	***3,241***	***3,241***
Currently Available Water Supplies						
Trinity Aquifer	1,597	1,597	1,597	1,597	1,597	1,597
Tarrant Regional Water District (through various suppliers)	1,832	1,657	1,366	1,128	971	847
Total Current Supplies	***3,429***	***3,254***	***2,963***	***2,725***	***2,568***	***2,444***
Need (Demand - Current Supply)	***53***	***148***	***385***	***543***	***673***	***797***
Water Management Strategies						
Water Conservation	53	173	183	194	204	215
Additional Water from TRWD	0	0	202	349	469	582
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***53***	***173***	***385***	***543***	***673***	***797***
Reserve (Shortage)	**0**	**25**	**0**	**0**	**0**	**0**

Table C-319
Tarrant County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,640**	**2,448**	**4,168**	**5,000**	**5,000**	**5,000**
Currently Available Water Supplies						
Run-of-River supplies	235	187	219	257	304	362
Tarrant Regional Water District	2,640	2,247	2,059	1,782	1,560	1,360
Total Current Supplies	***2,875***	***2,434***	***2,278***	***2,039***	***1,864***	***1,722***
Need (Demand - Current Supply)	***0***	***14***	***1,890***	***2,961***	***3,136***	***3,278***
Water Management Strategies						
Additional Water from TRWD	0	202	582	859	1,080	1,280
Reuse	0	0	1,528	2,360	2,360	2,360
Total Water Management Strategies	***0***	***202***	***2,110***	***3,219***	***3,440***	***3,640***
Reserve (Shortage)	**235**	**188**	**220**	**258**	**304**	**362**

Table C-320
Teague

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,201**	**5,846**	**6,450**	**7,135**	**7,779**	**8,424**
Projected Water Demand						
Municipal Demand	536	720	773	839	906	982
Total Projected Demand	***536***	***720***	***773***	***839***	***906***	***982***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	994	994	994	994	994	994
Total Current Supplies	***994***	***994***	***994***	***994***	***994***	***994***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	6	22	32	38	45	52
Additional Carrizo-Wilcox (new wells)	0	221	221	443	443	443
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***6***	***243***	***253***	***481***	***488***	***495***
Reserve (Shortage)	**464**	**517**	**474**	**636**	**576**	**507**

Table C-321
Terrell

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**16,185**	**45,005**	**65,000**	**85,000**	**97,000**	**110,000**
Projected Water Demand						
Municipal Demand	3,807	10,385	14,780	19,138	21,731	24,643
Manufacturing and Customer Demand	1,729	2,000	2,266	2,493	2,826	3,288
Total Projected Demand	***5,536***	***12,385***	***17,046***	***21,631***	***24,557***	***27,931***
Currently Available Water Supplies						
North Texas Municipal Water District	5,490	10,081	12,050	13,739	14,103	14,910
Total Current Supplies	***5,490***	***10,081***	***12,050***	***13,739***	***14,103***	***14,910***
Need (Demand - Current Supply)	***46***	***2,304***	***4,996***	***7,892***	***10,454***	***13,021***
Water Management Strategies						
Water Conservation (Terrell and Customers)	46	620	1,184	1,711	2,138	2,639
Additional Water from NTMWD		1,684	3,812	6,181	8,316	10,382
Wholesale Water System Expansions and Upgrades	0	0	0	0	0	0
Total Water Management Strategies	***46***	***2,304***	***4,996***	***7,892***	***10,454***	***13,021***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-322
The Colony

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**40,500**	**56,000**	**63,000**	**65,000**	**67,000**	**67,600**
Projected Water Demand						
Municipal Demand	5,761	7,778	8,609	8,810	9,006	9,087
Total Projected Demand	***5,761***	***7,778***	***8,609***	***8,810***	***9,006***	***9,087***
Currently Available Water Supplies						
Trinity Aquifer	934	934	934	934	934	934
Dallas Water Utilities	4,768	5,257	5,558	5,339	5,035	4,467
Plano (NTMWD)	568	633	609	560	517	485
Total Current Supplies	***6,270***	***6,824***	***7,101***	***6,833***	***6,486***	***5,886***
Need (Demand - Current Supply)	***0***	***954***	***1,508***	***1,977***	***2,520***	***3,201***
Water Management Strategies						
Water Conservation	77	299	416	462	505	540
Additional Water from DWU	348	1,474	1,816	2,174	2,616	3,225
Additional Water from Plano	0	115	210	275	333	370
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***425***	***1,888***	***2,442***	***2,911***	***3,454***	***4,135***
Reserve (Shortage)	**934**	**934**	**934**	**934**	**934**	**934**

Table C-323
Tioga

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,100**	**2,500**	**3,500**	**4,000**	**4,400**	**4,600**
Projected Water Demand						
Municipal Demand	192	428	588	663	725	757
Total Projected Demand	***192***	***428***	***588***	***663***	***725***	***757***
Currently Available Water Supplies						
Trinity Aquifer	211	211	211	211	211	211
Total Current Supplies	***211***	***211***	***211***	***211***	***211***	***211***
Need (Demand - Current Supply)	***0***	***217***	***377***	***452***	***514***	***546***
Water Management Strategies						
Water Conservation	4	31	55	68	80	90
Grayson County Water Supply Project (Sherman WTP)	0	225	375	425	475	500
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***256***	***430***	***493***	***555***	***590***
Reserve (Shortage)	**23**	**39**	**53**	**41**	**41**	**44**

Table C-324
Tom Bean

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,100**	**1,300**	**1,500**	**1,700**	**1,900**	**2,000**
Projected Water Demand						
Municipal Demand	259	301	343	383	426	448
Total Projected Demand	***259***	***301***	***343***	***383***	***426***	***448***
Currently Available Water Supplies						
Woodbine Aquifer	247	247	247	247	247	247
Total Current Supplies	***247***	***247***	***247***	***247***	***247***	***247***
Need (Demand - Current Supply)	***12***	***54***	***96***	***136***	***179***	***201***
Water Management Strategies						
Water Conservation	25	71	85	98	113	122
Grayson County Water Supply Project (Sherman WTP)	0	10	40	75	120	130
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***25***	***81***	***125***	***173***	***233***	***252***
Reserve (Shortage)	**13**	**27**	**29**	**37**	**54**	**51**

Table C-325
Tool

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,618**	**2,990**	**3,357**	**3,733**	**4,192**	**4,771**
Projected Water Demand						
Municipal Demand	405	452	500	548	610	695
Total Projected Demand	***405***	***452***	***500***	***548***	***610***	***695***
Currently Available Water Supplies						
West Cedar Creek Municipal Utility District (TRWD)	401	415	390	370	360	358
Total Current Supplies	***401***	***415***	***390***	***370***	***360***	***358***
Need (Demand - Current Supply)	***4***	***37***	***110***	***178***	***250***	***337***
Water Management Strategies						
Water Conservation	4	15	21	26	31	38
Additional Water from WCCMUD	0	22	89	152	219	299
Total Water Management Strategies	***4***	***37***	***110***	***178***	***250***	***337***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-326
Trenton

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,000**	**1,500**	**2,500**	**4,000**	**6,000**	**8,000**
Projected Water Demand						
Municipal Demand	206	302	496	780	1,163	1,550
Total Projected Demand	***206***	***302***	***496***	***780***	***1,163***	***1,550***
Currently Available Water Supplies						
Woodbine Aquifer	214	214	214	214	214	214
Total Current Supplies	***214***	***214***	***214***	***214***	***214***	***214***
Need (Demand - Current Supply)	***0***	***88***	***282***	***566***	***949***	***1,336***
Water Management Strategies						
Water Conservation	4	26	74	123	194	271
Fannin County Water Supply Project	0	110	294	586	975	1,362
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***136***	***368***	***709***	***1,169***	***1,633***
Reserve (Shortage)	**12**	**48**	**86**	**143**	**220**	**297**

Table C-327
Trinidad

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,112**	**1,135**	**1,158**	**1,181**	**1,210**	**1,246**
Projected Water Demand						
Municipal Demand	183	183	183	181	184	190
Total Projected Demand	***183***	***183***	***183***	***181***	***184***	***190***
Currently Available Water Supplies						
Trinidad City Lake	450	450	450	450	450	450
Total Current Supplies	***450***	***450***	***450***	***450***	***450***	***450***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	2	6	8	9	10	11
Total Water Management Strategies	***2***	***6***	***8***	***9***	***10***	***11***
Reserve (Shortage)	**269**	**273**	**275**	**278**	**276**	**271**

Table C-328
Trophy Club

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**8,253**	**9,307**	**10,211**	**10,995**	**11,841**	**12,687**
Projected Water Demand						
Municipal Demand	2,847	3,190	3,477	3,732	4,019	4,306
Total Projected Demand	***2,847***	***3,190***	***3,477***	***3,732***	***4,019***	***4,306***
Currently Available Water Supplies						
Trinity Aquifer	770	770	770	770	770	770
Fort Worth (TRWD)	2,057	2,221	2,111	1,999	1,920	1,822
Total Current Supplies	***2,827***	***2,991***	***2,881***	***2,769***	***2,690***	***2,592***
Need (Demand - Current Supply)	***20***	***199***	***596***	***963***	***1,329***	***1,714***
Water Management Strategies						
Water Conservation	20	133	191	243	296	353
Additional Water from Fort Worth	0	66	405	720	1,033	1,361
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***20***	***199***	***596***	***963***	***1,329***	***1,714***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-329
Two Way Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,081**	**6,720**	**8,251**	**9,819**	**11,382**	**12,945**
Projected Water Demand						
Municipal Demand	575	813	979	1,155	1,326	1,508
Total Projected Demand	***575***	***813***	***979***	***1,155***	***1,326***	***1,508***
Currently Available Water Supplies						
Trinity Aquifer	622	622	622	622	622	622
Total Current Supplies	***622***	***622***	***622***	***622***	***622***	***622***
Need (Demand - Current Supply)	***0***	***191***	***357***	***533***	***704***	***886***
Water Management Strategies						
Water Conservation	13	40	59	75	91	109
Grayson County Water Supply Project	0	200	350	500	650	800
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***13***	***240***	***409***	***575***	***741***	***909***
Reserve (Shortage)	**60**	**49**	**52**	**42**	**37**	**23**

Table C-330
University Park

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**24,092**	**24,647**	**25,046**	**25,335**	**25,543**	**25,693**
Projected Water Demand						
Municipal Demand	7,799	7,896	7,940	7,946	7,983	8,030
Total Projected Demand	***7,799***	***7,896***	***7,940***	***7,946***	***7,983***	***8,030***
Currently Available Water Supplies						
Dallas County Park Cities MUD	7,754	7,765	7,756	7,733	7,742	7,760
Total Current Supplies	***7,754***	***7,765***	***7,756***	***7,733***	***7,742***	***7,760***
Need (Demand - Current Supply)	***45***	***131***	***184***	***213***	***241***	***270***
Water Management Strategies						
Water Conservation	45	131	184	213	241	270
Total Water Management Strategies	***45***	***131***	***184***	***213***	***241***	***270***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-331
Valley View

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,500**	**3,000**	**5,000**	**7,000**	**12,000**	**15,000**
Projected Water Demand						
Municipal Demand	187	363	594	808	1,371	1,714
Total Projected Demand	***187***	***363***	***594***	***808***	***1,371***	***1,714***
Currently Available Water Supplies						
Trinity Aquifer	363	363	363	363	363	363
Total Current Supplies	***363***	***363***	***363***	***363***	***363***	***363***
Need (Demand - Current Supply)	***0***	***0***	***231***	***445***	***1,008***	***1,351***
Water Management Strategies						
Water Conservation	3	16	31	46	83	110
Cooke County Water Supply Project	0	150	400	650	1,200	1,600
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***3***	***166***	***431***	***696***	***1,283***	***1,710***
Reserve (Shortage)	**179**	**166**	**200**	**251**	**275**	**359**

Table C-332
Van Alstyne

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,000**	**7,500**	**13,500**	**17,000**	**18,500**	**19,200**
Projected Water Demand						
Municipal Demand	504	1,411	2,510	3,142	3,419	3,549
Total Projected Demand	***504***	***1,411***	***2,510***	***3,142***	***3,419***	***3,549***
Currently Available Water Supplies						
Trinity Aquifer	235	235	235	235	235	235
Woodbine Aquifer	215	215	215	215	215	215
Greater Texoma Utility Authority (Collin-Grayson Municipal Alliance Pipeline from NTMWD)	46	782	1,291	1,291	1,291	1,291
Total Current Supplies	***496***	***1,232***	***1,741***	***1,741***	***1,741***	***1,741***
Need (Demand - Current Supply)	***8***	***179***	***769***	***1,401***	***1,678***	***1,808***
Water Management Strategies						
Water Conservation	8	82	178	253	306	348
Additional Water from GTUA and Expanded CGMA Pipeline	0	97	591	1,148	1,372	1,460
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***179***	***769***	***1,401***	***1,678***	***1,808***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-333
Venus

See Brazos G Region Plan for Venus, which is in Johnson County.

Table C-334
Virginia Hill Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,131**	**3,146**	**3,161**	**3,176**	**3,195**	**3,219**
Projected Water Demand						
Municipal Demand	393	384	375	366	361	364
Total Projected Demand	***393***	***384***	***375***	***366***	***361***	***364***
Currently Available Water Supplies						
Carrizo-Wilcox Aquifer	443	443	443	443	443	443
Total Current Supplies	***443***	***443***	***443***	***443***	***443***	***443***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	4	14	20	21	22	24
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***4***	***14***	***20***	***21***	***22***	***24***
Reserve (Shortage)	**54**	**73**	**88**	**98**	**104**	**103**

Table C-335
Walnut Creek Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (Outside of Cities)	**21,343**	**31,654**	**50,123**	**62,000**	**65,500**	**68,000**
Projected Water Demand						
Municipal Demand	2,606	3,794	5,895	7,222	7,631	7,922
Customer Demand	1,057	1,790	2,693	3,627	4,613	5,666
Total Projected Demand	***3,663***	***5,584***	***8,588***	***10,849***	***12,244***	***13,588***
Currently Available Water Supplies						
Tarrant Regional Water District	3,575	4,204	4,204	4,204	4,204	4,204
Total Current Supplies	***3,575***	***4,204***	***4,204***	***4,204***	***4,204***	***4,204***
Need (Demand - Current Supply)	***88***	***1,380***	***4,384***	***6,645***	***8,040***	***9,384***
Water Management Strategies						
Water Conservation	88	304	548	737	886	1,040
Additional Water from TRWD, Plant Expansions, and Other Improvements	0	1,076	3,836	5,908	7,154	8,344
Total Water Management Strategies	***88***	***1,380***	***4,384***	***6,645***	***8,040***	***9,384***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Note: See Appendix H for details of demands.

Table C-336
Watauga

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**23,423**	**24,632**	**25,000**	**25,000**	**25,000**	**25,000**
Projected Water Demand						
Municipal Demand	3,437	3,532	3,500	3,416	3,388	3,388
Total Projected Demand	***3,437***	***3,532***	***3,500***	***3,416***	***3,388***	***3,388***
Currently Available Water Supplies						
North Richland Hills (from Fort Worth from TRWD)	3,401	3,242	2,730	2,305	2,002	1,746
Total Current Supplies	***3,401***	***3,242***	***2,730***	***2,305***	***2,002***	***1,746***
Need (Demand - Current Supply)	***36***	***290***	***770***	***1,111***	***1,386***	***1,642***
Water Management Strategies						
Water Conservation	36	122	165	178	189	200
Additional Water from North Richland Hills	0	168	605	933	1,197	1,442
Total Water Management Strategies	***36***	***290***	***770***	***1,111***	***1,386***	***1,642***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-337
Waxahachie

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**30,000**	**39,000**	**46,342**	**59,322**	**75,937**	**97,206**
Projected Water Demand						
Municipal Demand	6,855	8,781	10,330	13,090	16,672	21,341
Manufacturing and Customer Demand	2,255	2,900	3,521	6,275	8,976	9,979
Total Projected Demand	***9,110***	***11,681***	***13,851***	***19,365***	***25,648***	***31,320***
Currently Available Water Supplies						
Lake Bardwell	4,320	4,320	4,183	3,988	3,794	3,600
Lake Waxahachie	2,905	2,800	2,695	2,590	2,485	2,380
Reuse	4,998	5,129	5,129	5,129	5,129	5,129
Not Usable because of Plant Capacity	-3,815	-3,841	-3,599	-3,299	-3,000	-2,701
Rockett Special Utility District (Retail Sales in City)	613	613	613	613	613	613
Trinity River Authority (TRWD, limited by plant capacity)	2,325	2,440	3,765	5,605	5,605	5,605
Total Current Supplies	***11,346***	***11,461***	***12,786***	***14,626***	***14,626***	***14,626***
Need (Demand - Current Supply)	***0***	***220***	***1,065***	***4,739***	***11,022***	***16,694***
Water Management Strategies						
Water Conservation	175	857	1,365	1,866	2,499	3,332
Steam Electric Power Supply				2,116	4,129	4,454
Additional Water from Trinity River Authority and Plant Expansions	0	0	0	757	4,394	8,908
Total Water Management Strategies	***175***	***857***	***1,365***	***4,739***	***11,022***	***16,694***
Reserve (Shortage)	**2,411**	**637**	**300**	**0**	**0**	**0**

Note: See Appendix H for details of demands.

Table C-338
Weatherford

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population (In City Only)	**26,877**	**33,000**	**38,365**	**43,389**	**48,773**	**54,799**
Projected Water Demand						
Municipal Demand	5,509	6,617	7,607	8,554	9,561	10,741
Manufacturing and Customer Demand	760	1,266	1,684	2,053	2,354	2,658
Total Projected Demand	***6,269***	***7,883***	***9,291***	***10,607***	***11,915***	***13,399***
Currently Available Water Supplies						
Lake Weatherford	2,967	2,923	2,880	2,837	2,793	2,750
Tarrant Regional Water District (limited by Treatment Plant Capacity)	3,076	4,550	4,960	5,003	5,047	5,090
Total Current Supplies	***6,043***	***7,473***	***7,840***	***7,840***	***7,840***	***7,840***
Need (Demand - Current Supply)	***226***	***410***	***1,451***	***2,767***	***4,075***	***5,559***
Water Management Strategies						
Water Conservation	227	510	714	905	1,120	1,358
Additional Water from TRWD and WTP Expansions	0	0	737	1,862	2,955	4,201
Total Water Management Strategies	***227***	***510***	***1,451***	***2,767***	***4,075***	***5,559***
Reserve (Shortage)	**1**	**100**	**0**	**0**	**0**	**0**

Note: See Appendix H for details of demands.

Table C-339
West Cedar Creek Municipal Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population						
Outside of Cities	17,100	22,567	28,089	34,021	41,323	50,443
Seven Points	1,402	1,681	1,956	2,238	2,582	3,016
Tool	2,618	2,990	3,357	3,733	4,192	4,771
Total Population Served	**21,120**	**27,238**	**33,402**	**39,992**	**48,097**	**58,230**
Projected Water Demand						
Municipal Demand	1,724	2,604	3,335	4,002	4,860	5,933
Seven Points	188	222	254	288	330	385
Tool	405	452	500	548	610	695
Total Projected Demand	***2,317***	***3,278***	***4,089***	***4,838***	***5,800***	***7,013***
Currently Available Water Supplies						
TRWD (limited by contract)	1,714	1,714	1,714	1,714	1,714	1,714
Total Current Supplies	***1,714***	***1,714***	***1,714***	***1,714***	***1,714***	***1,714***
Need (Demand - Current Supply)	***603***	***1,564***	***2,375***	***3,124***	***4,086***	***5,299***
Water Management Strategies						
Water Conservation	44	156	238	304	384	490
Additional Water from TRWD (Limited by plant capacity)	559	1,408	1,425	1,425	1,425	1,425
Additional Water from TRWD and WTP Expansions	0	0	712	1,395	2,277	3,384
Total Water Management Strategies	***603***	***1,564***	***2,375***	***3,124***	***4,086***	***5,299***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-340
West Wise Special Utility District

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,474**	**3,864**	**4,287**	**4,758**	**5,283**	**5,865**
Projected Water Demand						
Municipal Demand	483	524	567	618	681	756
Demand for Chico	96	102	138	191	258	341
Total Projected Demand	***579***	***626***	***705***	***809***	***939***	***1,097***
Currently Available Water Supplies						
Tarrant Regional Water District (direct and through Walnut Creek SUD)	574	583	560	558	568	580
Total Current Supplies	***574***	***583***	***560***	***558***	***568***	***580***
Need (Demand - Current Supply)	***5***	***43***	***145***	***251***	***371***	***517***
Water Management Strategies						
Water Conservation (West Wise SUD and Chico)	14	28	41	51	62	76
Additional Water from TRWD and New or Expanded Water Treatment Plant	0	15	104	200	309	441
Total Water Management Strategies	***14***	***43***	***145***	***251***	***371***	***517***
Reserve (Shortage)	**9**	**0**	**0**	**0**	**0**	**0**

Table C-341
Weston

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,000**	**4,000**	**7,000**	**20,000**	**35,000**	**60,000**
Projected Water Demand						
Municipal Demand	251	672	1,482	4,234	7,410	12,702
Total Projected Demand	***251***	***672***	***1,482***	***4,234***	***7,410***	***12,702***
Currently Available Water Supplies						
Woodbine aquifer	276	276	276	276	276	276
Total Current Supplies	***276***	***276***	***276***	***276***	***276***	***276***
Need (Demand - Current Supply)	***0***	***396***	***1,206***	***3,958***	***7,134***	***12,426***
Water Management Strategies						
Water Conservation	8	50	117	370	712	1,327
North Texas Municipal Water District	0	401	1,199	3,754	6,588	11,265
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***451***	***1,316***	***4,124***	***7,300***	***12,592***
Reserve (Shortage)	**33**	**55**	**110**	**166**	**166**	**166**

Table C-342
Westover Hills

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**658**	**658**	**658**	**658**	**658**	**658**
Projected Water Demand						
Municipal Demand	276	274	272	270	268	268
Total Projected Demand	***276***	***274***	***272***	***270***	***268***	***268***
Currently Available Water Supplies						
Fort Worth (TRWD)	274	252	212	182	158	138
Total Current Supplies	***274***	***252***	***212***	***182***	***158***	***138***
Need (Demand - Current Supply)	***2***	***22***	***60***	***88***	***110***	***130***
Water Management Strategies						
Water Conservation	2	12	17	19	21	24
Additional Water from Fort Worth	0	10	43	69	89	106
Total Water Management Strategies	***2***	***22***	***60***	***88***	***110***	***130***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-343
Westworth Village

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,224**	**3,403**	**3,618**	**3,869**	**4,156**	**4,586**
Projected Water Demand						
Municipal Demand	350	412	426	442	470	519
Total Projected Demand	***350***	***412***	***426***	***442***	***470***	***519***
Currently Available Water Supplies						
Fort Worth (TRWD)	344	378	332	298	278	267
Total Current Supplies	***344***	***378***	***332***	***298***	***278***	***267***
Need (Demand - Current Supply)	***6***	***34***	***94***	***144***	***192***	***252***
Water Management Strategies						
Water Conservation	6	17	23	27	30	35
Additional Water from Fort Worth	0	17	71	117	162	217
Total Water Management Strategies	***6***	***34***	***94***	***144***	***192***	***252***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-344
White Settlement

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**15,800**	**17,000**	**18,000**	**19,000**	**20,500**	**22,000**
Projected Water Demand						
Municipal Demand	2,531	2,647	2,742	2,831	3,031	3,253
Total Projected Demand	***2,531***	***2,647***	***2,742***	***2,831***	***3,031***	***3,253***
Currently Available Water Supplies						
Trinity Aquifer	1,007	1,007	1,007	1,007	1,007	1,007
Fort Worth (TRWD)	1,173	1,505	1,353	1,231	1,196	1,157
Total Current Supplies	***2,180***	***2,512***	***2,360***	***2,238***	***2,203***	***2,164***
Need (Demand - Current Supply)	***351***	***135***	***382***	***593***	***828***	***1,089***
Water Management Strategies						
Water Conservation	351	72	99	115	134	154
Additional Water from Fort Worth		63	283	478	694	935
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***351***	***135***	***382***	***593***	***828***	***1,089***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-345
Whitesboro

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,400**	**5,000**	**5,700**	**6,500**	**7,500**	**10,000**
Projected Water Demand						
Municipal Demand	764	851	958	1,070	1,227	1,635
Total Projected Demand	***764***	***851***	***958***	***1,070***	***1,227***	***1,635***
Currently Available Water Supplies						
Trinity Aquifer	840	840	840	840	840	840
Total Current Supplies	***840***	***840***	***840***	***840***	***840***	***840***
Need (Demand - Current Supply)	***0***	***11***	***118***	***230***	***387***	***795***
Water Management Strategies						
Water Conservation	7	45	66	84	107	157
Grayson County Water Supply Project (Northwest WTP)	0	50	150	200	350	700
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***7***	***95***	***216***	***284***	***457***	***857***
Reserve (Shortage)	**83**	**84**	**98**	**54**	**70**	**62**

Table C-346
Whitewright

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**2,022**	**3,228**	**4,532**	**5,535**	**6,538**	**7,541**
Projected Water Demand						
Municipal Demand	403	632	873	1,048	1,230	1,419
Total Projected Demand	***403***	***632***	***873***	***1,048***	***1,230***	***1,419***
Currently Available Water Supplies						
Woodbine Aquifer	438	438	438	438	438	438
Total Current Supplies	***438***	***438***	***438***	***438***	***438***	***438***
Need (Demand - Current Supply)	***0***	***194***	***435***	***610***	***792***	***981***
Water Management Strategies						
Water Conservation	5	34	57	78	103	130
Grayson County Water Supply Project (Sherman WTP)	0	200	400	600	750	900
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***5***	***234***	***457***	***678***	***853***	***1,030***
Reserve (Shortage)	**40**	**40**	**22**	**68**	**61**	**49**

Table C-347
Willow Park

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**4,164**	**5,871**	**8,278**	**10,000**	**11,200**	**12,000**
Projected Water Demand						
Municipal Demand	681	934	1,298	1,557	1,731	1,855
Total Projected Demand	***681***	***934***	***1,298***	***1,557***	***1,731***	***1,855***
Currently Available Water Supplies						
Trinity Aquifer	757	757	757	757	757	757
Total Current Supplies	***757***	***757***	***757***	***757***	***757***	***757***
Need (Demand - Current Supply)	***0***	***177***	***541***	***800***	***974***	***1,098***
Water Management Strategies						
Water Conservation	12	59	65	83	98	112
Fort Worth (TRWD)	0	59	238	358	438	493
Weatherford (TRWD)	0	59	238	359	438	493
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***12***	***177***	***541***	***800***	***974***	***1,098***
Reserve (Shortage)	**88**	**0**	**0**	**0**	**0**	**0**

Table C-348
Wilmer

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**3,800**	**4,400**	**5,200**	**7,500**	**14,000**	**22,000**
Projected Water Demand						
Municipal Demand	443	527	612	874	1,631	2,563
Total Projected Demand	***443***	***527***	***612***	***874***	***1,631***	***2,563***
Currently Available Water Supplies						
Trinity Aquifer	322	322	322	322	322	322
Hutchins (DWU)	111	154	208	372	813	1,224
Total Current Supplies	***433***	***476***	***530***	***694***	***1,135***	***1,546***
Need (Demand - Current Supply)	***10***	***51***	***82***	***180***	***496***	***1,017***
Water Management Strategies						
Water Conservation	7	21	32	49	97	160
Additional Water from Hutchins	3	30	50	131	399	857
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***10***	***51***	***82***	***180***	***496***	***1,017***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-349
Wise County Irrigation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**502**	**502**	**502**	**502**	**502**	**502**
Currently Available Water Supplies						
Local Supplies	139	139	139	139	139	139
Trinity Aquifer	290	290	290	290	290	290
Tarrant Regional Water District	212	195	165	143	125	109
Total Current Supplies	***641***	***624***	***594***	***572***	***554***	***538***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Water Conservation	0	5	10	13	15	18
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***5***	***10***	***13***	***15***	***18***
Reserve (Shortage)	**139**	**127**	**102**	**83**	**67**	**54**

Table C-350
Wise County Livestock

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,714**	**1,714**	**1,714**	**1,714**	**1,714**	**1,714**
Currently Available Water Supplies						
Trinity Aquifer	807	807	807	807	807	807
Local Supplies	1,117	1,117	1,117	1,117	1,117	1,117
Total Current Supplies	***1,924***	***1,924***	***1,924***	***1,924***	***1,924***	***1,924***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***0***
Water Management Strategies						
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***0***	***0***	***0***	***0***	***0***
Reserve (Shortage)	**210**	**210**	**210**	**210**	**210**	**210**

Table C-351
Wise County Manufacturing

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**2,313**	**2,660**	**2,979**	**3,277**	**3,539**	**3,858**
Currently Available Water Supplies						
Other Aquifer	14	14	14	14	14	14
Tarrant Regional Water District (through multiple suppliers)	2,299	2,429	2,313	2,202	2,083	1,981
Total Current Supplies	***2,313***	***2,443***	***2,327***	***2,216***	***2,097***	***1,995***
Need (Demand - Current Supply)	***0***	***217***	***652***	***1,061***	***1,442***	***1,863***
Water Management Strategies						
Water Conservation	0	1	12	18	19	21
Additional water from TRWD	0	216	640	1,043	1,423	1,842
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***217***	***652***	***1,061***	***1,442***	***1,863***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-352
Wise County Mining

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**26,477**	**28,924**	**31,620**	**34,393**	**37,258**	**39,956**
Currently Available Water Supplies						
Reuse	15,930	14,074	12,152	10,643	9,236	8,061
Run-of-river - Trinity	51	51	51	51	51	51
Trinity Aquifer	2,553	2,553	2,553	2,553	2,553	2,553
Tarrant Regional Water District	7,943	7,961	7,395	6,961	6,603	6,175
Total Current Supplies	***26,477***	***24,639***	***22,151***	***20,208***	***18,443***	***16,840***
Need (Demand - Current Supply)	***0***	***4,285***	***9,469***	***14,185***	***18,815***	***23,116***
Water Management Strategies						
Additional Water from TRWD	0	716	2,091	3,357	4,574	5,812
Reuse - Recycled water	0	3,569	7,378	10,828	14,241	17,304
Supplemental wells	0	0	0	0	0	0
Total Water Management Strategies	***0***	***4,285***	***9,469***	***14,185***	***18,815***	***23,116***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-353
Wise County Other

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**31,801**	**35,218**	**35,218**	**35,218**	**35,218**	**35,218**
Projected Water Demand						
Municipal Demand	3,776	4,261	4,221	4,142	4,103	4,103
Total Projected Water Demand	***3,776***	***4,261***	***4,221***	***4,142***	***4,103***	***4,103***
Currently Available Water Supplies						
Trinity Aquifer	2,984	2,984	2,984	2,984	2,984	2,984
Tarrant Regional Water District	1,863	1,955	1,646	1,398	1,212	1,057
Total Current Supplies	***4,847***	***4,939***	***4,630***	***4,382***	***4,196***	***4,041***
Need (Demand - Current Supply)	***0***	***0***	***0***	***0***	***0***	***62***
Water Management Strategies						
Water Conservation	49	166	216	232	245	259
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***49***	***166***	***216***	***232***	***245***	***259***
Reserve (Shortage)	**1,120**	**844**	**625**	**472**	**338**	**197**

Table C-354
Wise County Steam Electric Power

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Water Demand	**1,751**	**1,245**	**1,216**	**1,878**	**2,042**	**2,748**
Currently Available Water Supplies						
Tarrant Regional Water District	1,751	1,143	948	1,267	1,207	1,416
Total Current Supplies	***1,751***	***1,143***	***948***	***1,267***	***1,207***	***1,416***
Need (Demand - Current Supply)	***0***	***102***	***268***	***611***	***835***	***1,332***
Water Management Strategies						
Additional Water from TRWD	0	102	268	611	835	1,332
Total Water Management Strategies	***0***	***102***	***268***	***611***	***835***	***1,332***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

Table C-355
Woodbine Water Supply Corporation

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**5,336**	**5,773**	**6,307**	**6,839**	**7,370**	**7,901**
Projected Water Demand						
Municipal Demand	669	712	762	802	855	915
Total Projected Demand	***669***	***712***	***762***	***802***	***855***	***915***
Currently Available Water Supplies						
Trinity Aquifer	661	661	661	661	661	661
Total Current Supplies	***661***	***661***	***661***	***661***	***661***	***661***
Need (Demand - Current Supply)	***8***	***51***	***101***	***141***	***194***	***254***
Water Management Strategies						
Water Conservation	8	28	39	46	52	59
Cooke County Water Supply Project	0	40	80	120	170	230
Supplemental Wells	0	0	0	0	0	0
Total Water Management Strategies	***8***	***68***	***119***	***166***	***222***	***289***
Reserve (Shortage)	**0**	**17**	**18**	**25**	**28**	**35**

Table C-356
Wortham

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**1,250**	**1,500**	**1,750**	**2,000**	**2,200**	**2,400**
Projected Water Demand						
Municipal Demand	272	321	369	414	453	495
Total Projected Demand	***272***	***321***	***369***	***414***	***453***	***495***
Currently Available Water Supplies						
Bistone Municipal WSD (Carrizo-Wilcox Aquifer, Limestone County, Region G)	560	0	0	0	0	0
Total Current Supplies	***560***	***0***	***0***	***0***	***0***	***0***
Need (Demand - Current Supply)	***0***	***321***	***369***	***414***	***453***	***495***
Water Management Strategies						
Water Conservation	14	38	49	58	68	78
Corsicana	0	300	300	300	300	300
Tarrant Regional Water District	0	300	300	300	300	300
WTP Expansion/Rehabilitation	0	0	0	0	0	0
Total Water Management Strategies	***14***	***638***	***649***	***658***	***668***	***678***
Reserve (Shortage)	**302**	**317**	**280**	**244**	**215**	**183**

Table C-357
Wylie

(Values in Ac-Ft/Yr)	Projected Population and Demand					
	2010	2020	2030	2040	2050	2060
Projected Population	**40,000**	**52,000**	**63,000**	**75,000**	**75,000**	**75,000**
Projected Water Demand						
Municipal Demand	6,810	8,737	10,586	12,601	12,601	12,601
Total Projected Demand	***6,810***	***8,737***	***10,586***	***12,601***	***12,601***	***12,601***
Currently Available Water Supplies						
North Texas Municipal Water District	6,663	7,111	7,483	8,003	7,237	6,726
Total Current Supplies	***6,663***	***7,111***	***7,483***	***8,003***	***7,237***	***6,726***
Need (Demand - Current Supply)	***147***	***1,626***	***3,103***	***4,598***	***5,364***	***5,875***
Water Management Strategies						
Water Conservation	147	673	1,213	1,556	1,662	1,767
Additional Water from NTMWD	0	953	1,890	3,042	3,702	4,108
Total Water Management Strategies	***147***	***1,626***	***3,103***	***4,598***	***5,364***	***5,875***
Reserve (Shortage)	**0**	**0**	**0**	**0**	**0**	**0**

APPENDIX D

QUESTIONNAIRES ON POPULATION AND WATER DEMAND PROJECTIONS, WATER MANAGEMENT STRATEGIES, CONSERVATION PRACTICES, AND WATER PLANNING ISSUES

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

April 30, 2009

WWP

«Title» «First_Name» «Last_Name»
«Job_Title»
«WUGName_of_Political_Subdivision»
«Address1»
«Address2»
«City», «State» «Postal_Code»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by May 22, 2009

Dear «Title» «Last_Name»:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board for review.

During the previous round of water planning, the Region C Water Planning Group sent you, or your predecessors, several surveys. Your input was incorporated into the *2006 Region C Water Plan*, which was later adopted into the 2007 State Water Plan by the Texas Water Development Board. The Region C Water Planning Group is now re-evaluating existing water supplies and proposed water management strategies. We are again seeking your input regarding your existing water supplies and proposed water management strategies.

We have attached summaries of the following information for the «WUGName_of_Political_Subdivision»:

- population projections (by customer)
- water demand projections (by customer)
- currently available water supplies
- recommended water management strategies from the *2006 Region C Water Plan*

We are asking that you review this information and provide any comments or corrections needed to accurately reflect your water needs and proposed projects for additional water supplies. If you have any questions or want additional information as you review these data, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

If you would like to meet with our consultants to discuss your water supply plans, please contact Mr. Shaffer of CPYI or Tom Gooch of Freese and Nichols at 817/602-0492.

Sincerely,

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

Region C Water Planning Group
Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please Return by May 22, 2009

Name of Supplier:____
Contact Person:____
Telephone Number:______________________________FAX:______________________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

1. Do you agree with the list of entities that you provide water? If not, what changes are needed? What is the basis for your suggested changes?

2. Do you have <u>significant</u> disagreement with the projected population and water demands? If so, what changes would you suggest? What is the basis for your suggested changes?

3. Do you agree with the list of currently available water supply sources? If not, what changes are needed? (Note: supplies have been adjusted to reflect availability as determined from the Water Availability Models. If your water supply projections show a decreasing amount, that is most likely attributable to sedimentation of a lake/reservoir.)

4. If you have a contract with another wholesale water provider(s) from whom you purchase water, what is the contractual maximum amount of water to be supplied? Please include copies of any available contracts with your survey response.

5. Do you agree with the proposed water management strategies listed in the 2006 Region C Water Plan? If not, what other strategies are you considering? Which of the listed strategies are you NOT considering? Do you have any strategies you want to add as alternatives to the recommended strategies?

6. Have you supplied, or do you plan to supply, water for mining operations in the Barnett Shale for natural gas drilling and/or exploration? If so, please provide any data regarding the amount of water supplied (historical and/or projections) for this purpose.

Questions 7 and 8: We did not receive a response from you regarding the previous Region C Water Planning Group survey on Conservation and Reuse Strategies in September 2007. Please take this opportunity to provide the Planning Group with any information regarding conservation measures and reuse strategies.

7. Are you considering implementing or participating in any water reuse projects other than those shown in the attached tables?

8. What conservation measures are you currently implementing?

9. Please give any other comments you have on these data or on development of the Region C Water Plan. Use the back (or additional sheets) if needed.

Please return by May 22, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

April 30, 2009

WUG

«Title» «First_Name» «Last_Name»
«Job_Title»
«WUGName_of_Political_Subdivision»
«Address1»
«Address2»
«City», «State» «Postal_Code»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by May 22, 2009

Dear «Title» «Last_Name»:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board for review.

During the previous round of water planning, the Region C Water Planning Group sent you, or your predecessors, several surveys. Your input was incorporated into the *2006 Region C Water Plan*, which was later adopted into the 2007 State Water Plan by the Texas Water Development Board. The Region C Water Planning Group is now re-evaluating existing water supplies and proposed water management strategies. We are again seeking your input regarding your existing water supplies and proposed water management strategies.

We have attached summaries of the following information for the «WUGName_of_Political_Subdivision»:

- population projections
- water demand projections
- currently available water supplies
- recommended water management strategies from the *2006 Region C Water Plan*

We are asking that you review this information and provide any comments or corrections needed to accurately reflect your water needs and proposed projects for additional water supplies. If you have any questions or want additional information as you review these data, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

Sincerely,

James M Parks

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

Region C Water Planning Group
Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please Return by May 22, 2009

Name of Supplier:____
Contact Person:____
Telephone Number:________________________FAX:______________________________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

1. Do you have <u>significant</u> disagreement with the projected population and water demands? If so, what changes would you suggest? What is the basis for your suggested changes?

2. Do you agree with the list of available water supply sources? If not, what changes are needed? (Note: supplies have been adjusted to reflect availability as determined from the Water Availability Models. If your water supply projections show a decreasing amount, that is most likely attributable to sedimentation of a lake/reservoir; an overall reduction in groundwater availability; or reallocation of regional system supplies to maintain an equivalent shortage for all customers.)

3. If you have a contract with a water supplier(s), what is the contractual maximum amount of water to be supplied? Please consider including a copy of any available contracts with your survey response.

4. If you are operating groundwater wells, what is the total capacity of your wells?

5. If you purchase water from a wholesale water supplier, but also operate groundwater wells, how do you prefer to operate your system? (Please circle one)

   A. We use our groundwater wells to meet our water demand, and use our contracted water supply sources for emergencies only.

   B. We use our groundwater wells to meet our base demand, and use our contracted water supply sources to meet peak demands (such as during the summer).

   C. We use both our groundwater wells and our contracted water supply sources equally.

   D. We use our contracted water supply sources to meet our base demand, and use our groundwater wells to meet peak demands (such as during the summer).

   E. We use our contracted water supply sources to meet our water demand, and use our groundwater wells for emergencies only.

   F. Other (please explain) ____
   ____

6. Do you agree with the proposed water management strategies listed in the 2006 Region C Water Plan? If not, what other strategies are you considering? Which of the listed strategies are you NOT considering? Do you have any strategies you want to add as alternatives to the recommended strategies?

7. If you supply water on a wholesale basis to any other entities (other cities, water supply corporations, water districts, etc.), please list the entities for which you now supply water on a wholesale basis and the amount supplied to each for the last 5 years. Please also include copies of the contract agreement(s) with your response to this survey.

8. Have you supplied, or do you plan to supply, water for mining operations in the Barnett Shale for natural gas drilling and/or exploration? If so, please provide any data regarding the amount of water supplied (historical and/or projections) for this purpose.

Questions 9 and 10: We did not receive a response from you regarding the previous Region C Water Planning Group survey on Conservation and Reuse Strategies in September 2007. Please take this opportunity to provide the Planning Group with any information regarding conservation measures and reuse strategies.

9. Are you considering implementing or participating in any water reuse projects other than those shown in the attached tables?

10. What conservation measures are you currently implementing?

11. Please give any other comments you have on these data or on development of the Region C water plan. Use the back (or additional sheets) if needed.

Please return by May 22, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

May 11, 2009

New WUG

«Title» «First_Name» «Last_Name»
«Job_Title»
«WUGName_of_Political_Subdivision»
«Address1»
«Address2»
«City», «State» «Postal_Code»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by May 29, 2009

Dear «Title» «Last_Name»:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board for review.

Your city has been added as a new Water User Group (WUG) by the Texas Water Development Board (TWDB) for the regional water planning process. The list of WUGs includes cities with a population over 500 and water suppliers who supply at least 0.25 MGD. Entities that fall below those thresholds are collectively referred to as "County Other". Because your city was included in the "County Other" category in previous Region C water plans, you may not be very familiar with the regional water planning process. As part of the process, several surveys are sent to all of the WUGs within Region C. The responses to these surveys will be used to help develop the next update to the Region C Water Plan, which will then be adopted into the next State Water Plan.

We have attached summaries of the following information for the «WUGName_of_Political_Subdivision»:

- population projections
- water demand projections
- currently available water supplies

We are asking that you review this information and provide any comments or corrections needed to accurately reflect your water needs and proposed projects for additional water supplies. We particularly would like information on your future water plans. If you have any questions or want additional information as you complete this survey, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

Please return your completed survey to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

Sincerely,

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

Name of Supplier:____
Contact Person:____
Telephone Number:_________________________FAX:______________________________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

1. Do you have significant disagreement with the projected population and water demands? If so, what changes would you suggest? What is the basis for your suggested changes?

2. Do you agree with the list of available water supply sources? If not, what changes are needed? (Note: supplies have been adjusted to reflect availability as determined from the Water Availability Models. If your water supply projections show a decreasing amount, that is most likely attributable to sedimentation of a lake/reservoir; an overall reduction in groundwater availability; or reallocation of regional system supplies to maintain an equivalent shortage for all customers.)

3. If you have a contract with a water supplier(s), what is the contractual maximum amount of water to be supplied? Please consider including a copy of any available contracts with your survey response.

4. If you are operating groundwater wells, what is the total capacity of your wells?

5. If you purchase water from a wholesale water supplier, but also operate groundwater wells, how do you prefer to operate your system? (Please circle one)

   A. We use our groundwater wells to meet our water demand, and use our contracted water supply sources for emergencies only.

   B. We use our groundwater wells to meet our base demand, and use our contracted water supply sources to meet peak demands (such as during the summer).

   C. We use both our groundwater wells and our contracted water supply sources equally.

   D. We use our contracted water supply sources to meet our base demand, and use our groundwater wells to meet peak demands (such as during the summer).

   E. We use our contracted water supply sources to meet our water demand, and use our groundwater wells for emergencies only.

   F. Other (please explain) ____
   ____

6. Do you agree with the proposed water management strategies listed for the 2011 Region C Water Plan? If not, what other strategies are you considering? Which of the listed strategies are you NOT considering? Do you have any strategies you want to add as alternatives to the recommended strategies?

7. If you supply water on a wholesale basis to any other entities (other cities, water supply corporations, water districts, etc.), please list the entities for which you now supply water on a wholesale basis and the amount supplied to each for the last 5 years. Please also include copies of the contract agreement(s) with your response to this survey.

8. Have you supplied, or do you plan to supply, water for mining operations in the Barnett Shale for natural gas drilling and/or exploration? If so, please provide any data regarding the amount of water supplied (historical and/or projections) for this purpose.

9. Are you considering implementing or participating in any water reuse projects? If so, which one(s)?

10. What conservation measures are you currently implementing?

11. If you have developed a Water Conservation Plan and/or a Drought Contingency Plan, please provide a copy of those plans with your response to this survey.

12. Please give any other comments you have regarding your entity or on development of the Region C water plan. Use the back (or additional sheets) if needed.

Please return by May 29, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

June 24, 2009

County

«Title» «FirstName» «LastName»
«JobTitle»
«County_Name_of_Political_Subdivision»
«Address1»
«Address2»
«City», «State» «PostalCode»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by July 10, 2009

Dear Judge Self:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board for review.

As instructed by the legislature, the TWDB has formulated regulations governing the preparation of regional plans. These regulations require that regional water plans be based on projections of population and water needs developed by the TWDB, unless the regional water planning group can provide convincing evidence that those projections should be modified.

During the previous round of water planning, the Region C Water Planning Group sent you, or your predecessors, several surveys. Your input was incorporated into the *2006 Region C Water Plan*, which was later adopted into the 2007 State Water Plan by the Texas Water Development Board. The Region C Water Planning Group is now re-evaluating existing water supplies and proposed water management strategies. We are again seeking your input regarding existing water supplies and proposed water management strategies. Since a specific municipality or wholesale water provider will implement most of the strategies identified for municipal water needs, we are only asking your input on non-municipal water management strategies.

To help you understand the water issues in your county, we have attached a summary for Collin County that shows four sets of data in two tables. Table 1 presents the current county population and water demand projections through the year 2060. Table 2 lists the current sources of water for non-municipal water needs and the proposed water management strategies. Based on this data, we have identified the following key issues for your county:

- Projected water demands for Manufacturing exceed available supply
- Projected water demands for Mining exceed available supply
- Projected water demands for Steam-Electric-Power exceed available supply

To meet the projected non-municipal shortages in Collin County, the following water management strategies were proposed in the *2006 Region C Water Plan*:

- Water Conservation
- Purchase water from NTMWD
- Supplemental wells in Woodbine aquifer

We understand that you may not be directly familiar with these proposed strategies. However, if you are aware of any additional proposals to develop water for non-municipal uses, please provide your comments in the attached survey response sheet. If you have no comments or are in agreement with these water supply sources and management strategies, please check the appropriate box. Your response can be mailed or faxed to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

Please provide your response by July 10, 2009. If you have any questions as you review these data, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

Sincerely,

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

Region C Water Planning Group
Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please Return by July 10, 2009

County:____
Contact Person:____
Telephone Number:______________________FAX:______________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

☐ I have no comments on the identified water supply sources and proposed water management strategies for non-municipal use

☐ I have the following comments:

____

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____

Please return by July 10, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

June 24 2009

Council of Governments

«Title» «FirstName» «LastName»
«JobTitle»
«Council of Governments»
«Address1»
«City», «State» «PostalCode»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by July 10, 2009

Dear «Salutation»:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board (TWDB) for review.

During the previous round of water planning, the Region C Water Planning Group sent you, or your predecessors, several surveys. Your input was incorporated into the *2006 Region C Water Plan*, which was later adopted into the 2007 State Water Plan by the TWDB. The Region C Water Planning Group is now re-evaluating existing water supplies and proposed water management strategies.

As instructed by the legislature, the TWDB has formulated regulations governing the preparation of regional plans. These regulations require that regional water plans be based on projections of population and water needs developed by the TWDB, unless the regional water planning group can provide convincing evidence that those projections should be modified.

To help you fill out the attached survey, we are providing the following information:

- Table 1 presents the overall county population and water demand projections (by type) through the year 2060
- Table 2 lists the population projections by Water User Group within each county
- Table 3 lists the projected municipal water demands by Water User Group within each county

If you have no comments or are in agreement with these water supply sources and management strategies, please check the appropriate box. Your response can be mailed or faxed to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

Please provide your response by July 10, 2009. If you have any questions as you review these data, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

Sincerely,

James M Parks

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

Region C Water Planning Group
Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please Return by July 10, 2009

Organization:____
Contact Person:____
Telephone Number:________________FAX:_____________________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

☐ I have no comments on the identified water supply sources and proposed water management strategies for non-municipal use

☐ I have the following comments:

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Please return by July 10, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

REGION C WATER PLANNING GROUP

Senate Bill One – Third Round of Regional Water Planning - Texas Water Development Board

June 24, 2009

County Agricultural Extension

«Title» «FirstName» «LastName»
«JobTitle»
«Name_of_Political_Subdivision»
«Address1»
«City», «State» «PostalCode»

Subject: Regional Water Planning – Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please respond by July 10, 2009

Dear «Salutation»:

The Region C Water Planning Group is actively working on the update to the *2006 Region C Water Plan*. The updated *Region C Water Plan* is to be completed by March 1, 2010 and submitted to the Texas Water Development Board for review.

As instructed by the legislature, the TWDB has formulated regulations governing the preparation of regional plans. These regulations require that regional water plans be based on projections of population and water needs developed by the TWDB, unless the regional water planning group can provide convincing evidence that those projections should be modified.

During the previous round of water planning, the Region C Water Planning Group sent you, or your predecessors, several surveys. Your input was incorporated into the *2006 Region C Water Plan*, which was later adopted into the 2007 State Water Plan by the Texas Water Development Board. The Region C Water Planning Group is now re-evaluating existing water supplies and proposed water management strategies. We are again seeking your input regarding agricultural water needs projections (for irrigation and livestock), existing water supplies and proposed water management strategies.

To help you understand the water issues in your county, we have attached a summary for Collin County that shows four sets of data in two tables. Table 1 presents the current county population and water demand projections through the year 2060. Table 2 lists the current sources of water for non-municipal water needs and the proposed water management strategies. Based on this data, we have identified the following key issues for your county:

- Projected water demands for Manufacturing exceed available supply
- Projected water demands for Mining exceed available supply
- Projected water demands for Steam-Electric-Power exceed available supply

c/o NTMWD
505 E. Brown Street
P. O. Box 2408
Wylie, Texas 75098-2408
972/442-5405
972/442-5405/Fax
jparks@ntmwd.com
www.regioncwater.org

To meet the projected non-municipal shortages in Collin County, the following water management strategies were proposed in the *2006 Region C Water Plan*:

- Water Conservation
- Purchase water from NTMWD
- Supplemental wells in Woodbine aquifer

We understand that you may not be directly familiar with these proposed strategies. However, if you are aware of any additional proposals to develop water for non-municipal uses, please provide your comments in the attached survey response sheet as well. If you have no comments or are in agreement with these water supply sources and management strategies, please check the appropriate box. Your response can be mailed or faxed to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

Please provide your response by July 10, 2009. If you have any questions as you review these data, please call Rick Shaffer of CP&Y, Inc. at 817-392-6821. We greatly appreciate your attention and cooperation in reviewing this information, which will provide the basis for long-range water supply planning in Region C.

Sincerely,

James M Parks

Jim Parks
Chair, Region C Water Planning Group

Cc: Russell Laughlin, Secretary

Region C Water Planning Group
Confirmation of Existing Water Supplies and Proposed Water Management Strategies
Please Return by July 10, 2009

Organization:____
Contact Person:____
Telephone Number:_________________________FAX:_______________________
Email Address:____
Mailing Address:____

Please provide any corrections to the above contact information.
Person filling out this survey ____

☐ I have no comments on the identified water supply sources and proposed water management strategies for non-municipal use

☐ I have the following comments:

1. Do you agree that the TWDB projections of irrigation and livestock water needs for your county are appropriate? If not, what changes would you suggest? What is the basis for your suggested changes?

2. How many acres of cultivated land are in your county?

3. How many acres of idle land are in your county?

4. Are you aware of any trend in changes of crop type?

5. Is there a trend in your county to move from cultivated to urban land use and/or rural residential use? If so, how much acreage do you expect to see converted?

6. How many acres of land are available for livestock in your county? How many acres of land are currently being used for livestock?

7. What is the approximate number of head of livestock within your county? How many Confined Animal Feeding Operations (CAFOs) are in your county and what is the head count? Are you aware of any proposed CAFOs for your county, and what is the expected head count?

8. What is your projected change in livestock over the next 10 years?

9. In your opinion, are there any Natural Resource Conservation Service (formerly Soil Conservation Service) structures that need to be repaired or dredged in your county? If so, approximately how many, what are the sizes of the structures, and where are they located within the county?

10. Is anyone in your county experiencing water shortages for livestock? If so, are the shortages occurring in particular areas or county-wide? Are these shortages due to lack of surface water or lack of groundwater?

11. Is there any other information you think might be helpful in this planning effort?

12. Is anyone in your county practicing brush control for the purposes of water conservation? If so, how many people are using this method and how many acres of land are involved? In your opinion, has there been any benefit from brush control as a water conservation strategy?

13. Please provide your historical total water usage for the following years:

    2003:____________________________

    2004:____________________________

    2005:____________________________

    2006:____________________________

    2007:____________________________

    2008:____________________________

14. Please give any other comments you have on the regional water planning process. Use the back (or other sheets) if needed.

Please return by July 10, 2009 to:

CP&Y, Inc.
c/o Rick Shaffer
115 West 7th Street, Suite 1500
Fort Worth, TX 76102
-or by fax-
FAX: (817) 354-4935

APPENDIX E

REGION C ADJUSTMENTS TO POPULATION AND WATER DEMAND PROJECTONS

FREESE AND NICHOLS
Innovative approaches
Practical results
Outstanding service
4055 International Plaza, Suite 200 • Fort Worth, Texas 76109 • 817-735-7300 • fax 817-735-7491 • www.freese.com

TO: Texas Water Development Board

CC: File – NTD08492-2.30.2

FROM: Thomas C. Gooch, P.E. and Amy D. Kaarlela

SUBJECT: Revisions to Region C Population and Municipal Demand Projections

DATE: October 9, 2009

DRAFT
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF THOMAS C. GOOCH, P.E., TEXAS NO. 50668 ON OCTOBER 9, 2009. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES. FREESE AND NICHOLS, INC. TEXAS REGISTERED ENGINEERING FIRM F-2144

This memorandum addresses Task 2 for the 2011 Region C Water Plan, "Review and Revision of Population and Water Demand Projections". This memo contains detailed descriptions by county of FNI's suggested revisions to population and demand projections. These revisions are based on TWDB input (list of suggested revisions), applicable planning studies performed on the local level, and direct input from WUGs and WWPs via meetings, survey responses, and phone or email correspondence. Where appropriate, supporting documentation has been cited. A glossary is included at the end of this memo for all abbreviated terms.

The table below shows the population and demand projections by decade from the *2006 Region C Plan* and our suggested revisions to those projections.

	2010	2020	2030	2040	2050	2060
Population						
2006 Plan	6,625,282	7,966,389	9,093,847	10,246,795	11,559,990	13,087,849
Revised	6,670,493	7,971,728	9,171,650	10,399,038	11,645,686	13,045,592
Demand						
2006 Plan (acre-ft/yr)	1,534,703	1,828,831	2,060,118	2,294,491	2,574,265	2,915,773
Revised (acre-ft/yr)	1,546,970	1,833,671	2,087,597	2,344,115	2,612,176	2,924,157

Collin County

Allen – Based on survey response, discussions with city staff, and current NCTCOG population estimates, we limited population to build out population. Based on survey response, we decreased per capita use in 2010 and 2020.

Anna – Based on survey response and input from Anna's future water providers (GTUA and NTMWD), we increased the population in all years to account for current population and ultimate build out population.

Blue Ridge – No change.

Caddo Basin SUD – No change.

Celina – TWDB suggested an increase in population for Celina in Collin County. We have revised the 2010 population per TWDB, but we put the remaining years' increases in the Denton County portion of Celina. UTRWD suggested an increase in gpcd use for 2010 through 2060 based on usage in recent years.

County Other – No change.

Culleoka WSC – No change.

Dallas – Based on input from city staff, we decreased per capita use in all years.

Danville WSC – No change.

East Fork SUD – Based on recent historical population and survey response, we increased population in all years. All of this increase was placed in the Collin County portion of East Fork SUD.

Fairview – Based on current population estimates, city input, and TWDB input, we increased population in 2010 through 2040. We limited population to build out beginning in 2040.

Farmersville – No change in population. TWDB suggested an increase in population. Based on historical population and projections from other sources, we feel this increase is not warranted. Based on recent historical data, we increased per capita use in all years.

Frisco – Based on data from Frisco's Planning Department, we decreased population in all years in both Collin and Denton Counties to account for slower recent growth and a lower build out population. Based on survey response, we decreased per capita use for 2020 through 2060.
Garland – No change.

Marilee SUD (Formerly called Gunter Rural WSC) – Based on survey response, we decreased population in 2010 and 2020.

Hickory Creek SUD – No change.

Josephine – Based on TWDB input, we increased population in 2010, 2050, and 2060, and decreased population in 2020, 2030, and 2040 (to match TWDB suggested revisions). Based on recent historical use, we increased per capita use in all years.

Lavon WSC – Based on survey response, we decreased population in 2010 and increased population in 2020, 2030, and 2040.

Lowry Crossing – Based on TWDB input, we increased population in 2010 through 2040 population. Based on survey response, we limited the remaining years' population to build out population beginning in 2040.

Lucas – No change.

McKinney – Based on TWDB input, survey response, and discussions with city staff, we increased population in 2010 through 2040, however the increase was not as much as recommended by TWDB. Based on city input, we increased the 2050 population and decreased the 2060 population to a build out of 380,000. Based on survey response, we decreased per capita use for 2020 through 2060.

Melissa – Based on recent historical population, we decreased population in 2010, 2020, and 2030.

Milligan WSC – No change.

Murphy – Based on current population estimates, we increased population in 2010. Based on recent historical use information from Murphy's wholesale water provider (NTWMD), we increased per capita use in all years.

Nevada – No change. TWDB suggested an increase in population. We feel this increase is not warranted.

New Hope – No change.

North Collin WSC – No change.

Parker – Based on current population estimates, we decreased population in 2010.

Plano – Based on survey response and current population estimates, we increased the population in 2010 and 2020 and we decreased population in 2030 through 2060 due to lower build out population.

Princeton – Based on TWDB input, we increased population in 2010 and 2020. We feel the remaining years' population should remain the same. Based on recent historical use from Princeton's wholesale water provider (NTWMD), we increased per capita use in all years.

Prosper – Based on recent historical population and input from Prosper's current water provider (NTMWD), we decreased population in 2020 through 2040.

Richardson – No change.

Royse City – Based on slower recent growth, we slightly decreased population in 2010 and 2020. We also increased the 2060 population to continue future growth trend.

Sachse – Based on TWDB input, we increased population in 2010, 2020, and 2030. We limited population to build out population provided by Sachse's water supplier (NTMWD) beginning in 2020.

Saint Paul – No change.

South Grayson WSC – No change.

Weston – No change.

Wylie – Based on recent historical population, we increased population in 2010 through 2030. Based on survey response, we limited population to build out population beginning in 2040. Based on recent historical use from Wylie's wholesale water provider (NTWMD), we decreased per capita use in all years.

Cooke County

Bolivar WSC – No change.

County Other – No change.

Gainesville – Based on recent historical population, we decreased population in 2010 through 2050.

Kiowa Homeowners WSC – Based on groundwater use records and TCEQ meter count, we increased the per capita water use in all years.

Lindsay – No change.

Muenster – Based on survey response, we decreased population in all years.

Two Way SUD – The per capita use in Cooke County was changed slightly to match the per capita use in Grayson County.

Valley View – No change.

Woodbine WSC – No change.

Dallas County

Addison – Based on recent historical population, we decreased population in 2010 to account for slower growth.

Balch Springs – No change.

Carrollton – No change.

Cedar Hill – Based on the recent special county study[1], we increased population in 2020, 2030 and 2040. Based on information from the City's Master Plan, we limited the population to build out beginning in 2040. Based on recent historical use from the City, we increased per capita use in all years.

Cockrell Hill – No change.

Combine – No change.

Combine WSC – No change.

Coppell – Based on recent historical use, we increased per capita use in all years.

County Other – No change.

Dallas – Based on input from city staff, we decreased population in 2020 and 2030, and we decreased per capita use in all years.

Dallas County WCID #6 – We set the population to zero in all years. Based on discussions with the District and the City of Balch Springs, TWDB understands that essentially all of the population and demand served by Dallas County WCID #6 is in the City of Balch Springs. This was not properly adjusted in the 2006 plan. TWDB recommended that Region C put zero retail population and demand for Dallas County WCID #6. This will make the District only a wholesale supplier for Balch Springs rather than a WUG.

DeSoto –Based on recent historical use, we decreased per capita use in all years.

Duncanville – Based on survey response, the city is currently at 98% build out, so future population is held at the 2010 level. Based on recent historical use, we decreased per capita use in all years.

East Fork SUD – No change.

Farmers Branch – No change.

Garland – Based on information from Garland's Master Plan and from their wholesale water provider (NTMWD), we decreased population in all years to reflect a lower build out population.

Glenn Heights – Based on TWDB input, we increased population in all years.

Grand Prairie – Based on survey response, we decreased population in all years to reflect a lower build out population. This reduction was taken in all three counties (Dallas, Ellis and Tarrant). Based on survey response, we slightly increased per capita use in all years.

Grapevine – No change.

Highland Park – No change.

Hutchins – Based on survey response, we decreased population in all years. Based on recent historical use, we increased per capita use in all years.

Irving – Based on survey response, we increased per capita use in all years. Most of the future growth in the city will be commercial rather than population, which will increase per capita use.

Lancaster –Based on survey response, we decreased population in 2020 and limited population to build out population, beginning in 2030.

Lewisville – No change.

Mesquite – Based on survey response and the Mesquite's Master Plan, we decreased population in all years. Based on their Master Plan, we slightly increase per capita use in all years.

Ovilla –Based on recent historical use, we increased per capita use in all years. Based on input from the City, we decreased population for 2010 through 2030.

Richardson – No change.

Rockett SUD – No change.

Rowlett – Based on recent historical use, we decreased per capita use in all years.

Sachse – Based on TWDB input, we increased population in 2010. Based on input from Sachse's water provider (NTMWD), we adjusted population in the remaining years to account for a lower build out population. The adjustments resulted in population increases in 2020 through 2050 and population decrease in 2060.

Sardis-Lone Elm WSC – The per capita use in Dallas County was changed slightly to match the per capita use in Ellis County.

Seagoville – Based on recent historical population, we decreased population for years 2010 through 2040 to account for slower growth. Based on recent historical use, we increased per capita use in all years.

Sunnyvale – No change.

University Park –Based on recent historical use, we increased per capita use in all years.

Wilmer – Based on recent historical population, we decreased population for years 2010 through 2040 to account for slower growth.

Wylie – Based on recent historical population, we increased population in 2010 and 2020. We kept the 2030 and 2040 populations from the 2006 Plan. Based on survey response, we limited the 2050 and 2060 populations to build out population (which was achieved beginning in 2040). Based on recent historical use information from Wylie's wholesale water provider (NTWMD), we decreased per capita use in all years.

Denton County

Argyle – Based on recent historical population and input from Argyle's water provider (UTRWD), we decreased population in all years.

Argyle WSC – Based on input from Argyle WSC's water provider (UTRWD), we increased population in all years.

Aubrey – Based on recent historical population and input from Aubrey's water provider (UTRWD), we decreased population in 2010.

Bartonville – Based on survey response and input from Bartonville's water provider (UTRWD), we decreased population in all years to account for a lower build out population.

Bartonville WSC – No change.

Bolivar WSC – No change.

Carrollton – No change.

Celina – TWDB suggested an increase in population for Celina in Collin County. We put all of this increase in Denton County beginning in 2020. (Celina has ETJ in Denton County and plans to annex into Denton County in the future.) We used the same per capita for Celina in Denton County as was used for Celina in Collin County.

Coppell – Based on recent historical use, we increased per capita use in all years.

Copper Canyon – Based on input from the City, we decreased population in all years.

Corinth – Based on TWDB input, we increased the 2010 population. We kept the 2040, 2050, and 2060 populations from the 2006 plan, which we believe are more reasonable than the TWDB suggested increase. The 2020 and 2030 populations were calculated to be a straight line between 2010 and 2040.

County Other – Based on input from UTRWD which supplies most of the County Other water demand, we increased population in all years. The table below shows the specific entities included in our calculation of Denton County Other population.

	2010	2020	2030	2040	2050	2060
Population						
Blackrock WSC	1,143	1,143	1,143	1,143	1,143	1,143
Corral City	115	901	1,557	1,965	2,161	2,161
Lakewood Village	643	943	1,244	1,244	1,244	1,244
Lantana (DCFWSD#7)	7,050	12,500	12,500	12,500	12,500	12,500
Denton County Unincorporated	19,822	12,225	5,703	12,877	20,757	29,075
DC FWSD #9	4,682	7,483	10,275	10,275	10,275	10,275
DCFWSD #8A & 11	5,537	11,351	16,749	16,749	16,749	16,749
DCFWSD #10	3,750	9,900	16,239	16,965	16,965	16,965
Total	**42,742**	**56,446**	**65,410**	**73,718**	**81,794**	**90,112**

Cross Roads – Based on survey response, we limited population to build out population beginning in 2020.

Dallas – Based on input from city staff, we decreased per capita use in all years.

Denton – Based on input from the city, we decreased population in 2010, 2020, and 2030.

Denton County FWSD No. 1A – No change.

Double Oak – Based on survey response, we limited population to build out population beginning in 2010 to reflect higher current population and a lower build out population.

Flower Mound – Based on survey response, we revised population in all years. Based on survey response, we decreased per capita use in 2010 and increased per capita use in the remaining years to reflect the fact that in future years commercial growth will exceed residential growth.

Fort Worth – Based on current population estimates, meetings with City staff, and input from the City Planning Department, we increased population in all years.

Frisco – Based on data from Frisco's Planning Department, we decreased population in all years to account for slower recent growth and a lower build population. Based on survey response, we decreased per capita use for 2020 through 2060.

Hackberry – No change.

Hebron – Based on recent historical population, we decreased population in all years and limited it to build out.

Hickory Creek – Based on input from Hickory Creek's water supplier (UTRWD), we increased the 2010 and 2020 population to account for recent rapid growth, and we limited population to build out beginning in 2040 and beyond. Based on recent historical use, we increased per capita use in all years.

Highland Village – Based on survey response, we limited population to build out population beginning in 2040. Based on recent historical use, we increased per capita use in all years.

Justin – Based on TWDB input, we increased population in all years.

Krugerville – Based on TWDB input, we increased population in all years.

Krum – Based on recent historical population, we increased population in 2010 and 2020. Based on input from Krum's water provider (UTRWD), we limited population to build out for the remaining years. Based on recent historical use, we increased per capita use in 2010. All other years remain the same.

Lake Dallas – Based on input from Lake Dallas' water provider (UTRWD), we limited population to build out beginning in 2030. Based on recent historical use, we increased per capita use in all years.

Lewisville – Based on current population estimates, we decreased the population in 2010. Based on input from Lewisville, we decreased the population in 2060 to limit the population to build out. The population for 2020 through 2050 was adjusted to show steady growth.

Lincoln Park – Based on recent historical population and input from Lincoln Park's water provider (UTRWD), we decreased population in 2010. Based on input from the city, we limited population to build out in 2060, and adjusted population in 2020 through 2050 to show steady growth.

Little Elm – We decreased population beginning 2030 to account for a lower build out population.

Mustang SUD – Based on input from Mustang SUD's water provider (UTRWD), we increased population in 2040, 2050, and 2060.

Northlake – Based on survey response, we decreased population in 2010 and shifted population growth back 10 years for all decades.

Oak Point – Based on input from Oak Point's water provider (UTRWD), we increased population in all years.

Pilot Point – Based on recent historical population, input from Pilot Point's water provider (UTRWD), and local NCTCOG projections, we decreased the 2010 and 2020 population to account for slower growth.

Plano – In Denton County, we increased the near term population (2010, 2020, 2030, and 2040) due to recent accelerated growth, however based on the survey response we did not increase it as much as TWDB suggested. In addition, based on the survey response, we decreased the 2060 population due to lower build out population.

Ponder – Based on input from city, we decreased population in 2010.

Prosper – Based on input from UTRWD, we decreased population in 2010 to reflect the fact that there is currently no development of Prosper within Denton County (all current development is in Collin County).

Roanoke – Based on recent historical population, we increased population in 2010 through 2030 to account for accelerated growth in recent years and the annexation of Marshall Creek. The population increase in 2040 through 2060 only accounts for the annexation of Marshall Creek.

Sanger – Based on recent historical population and input from Sanger's water provider (UTRWD), we decreased population in 2010 and 2020 to account for slower growth. Based on recent historical use, we decreased per capita use in all years.

Shady Shores – Based on TWDB input, we increased population in 2010, 2020, and 2030. Based on input from Shady Shores' water provider (UTRWD), we limited population to build out beginning in 2030.

Southlake – Based on survey response, we decreased population in all years.

The Colony – Based on current population estimates, we decreased population in 2010. Based on recent historical use, we increased the already low per capita use in all years.

Trophy Club – Based on TWDB input, we increased population in all years.

Ellis County

Bardwell – No change.

Brandon-Irene WSC – No change.

Buena Vista-Bethel SUD – Based on survey response, we increased population and per capita use in all years.

Cedar Hill – Based on recent historical use from the City, we increased per capita use in all years.

Community Water Company – No change.

County Other – No change.

Ennis – No change.

Ferris – Based on the recent special county study[1], we increased population in all years. The 2060 population represents the build out population.

Files Valley WSC – Based on survey response and discussions with Files Valley staff, we increased population in all years.

Glenn Heights – Based on TWDB input, we increased population in all years.

Grand Prairie – Based on survey response, we decreased population in all years to reflect a lower build out population. This reduction was taken in all three counties (Dallas, Ellis and Tarrant). Based on survey response, we slightly increased per capita use in all years.

Italy – No change.

Johnson County SUD – No change.

Mansfield – Based on survey response, we increased population in all years. Based on recent historical use, we decreased per capita use in all years.

Maypearl – Based on recent historical population and TWDB input, we increased population in all years. We limited population to build out population beginning in 2030.

Midlothian – Based on survey response, we increased population in all years.

Milford – Based on TWDB input, we increased population in all years. Based on recent historical use, we increased per capita use in all years.

Mountain Peak WSC – No change.

Oak Leaf – No change.

Ovilla – Based on recent historical use, we increased per capita use in all years. Based on input from the City, we decreased population for 2010 through 2030.

Palmer – Based on TWDB input, we increased population in all years.

Pecan Hill – No change.

Red Oak – Based on the recent special county study[1], we increased population through 2030. We extended that population growth through 2060 using a slower growth rate.

Rice WSC – No change.

Rockett SUD – Based on the recent special county study[1], we increased population through 2030. We extended that population growth through the remaining years, reaching build out population in 2050.

Sardis-Lone Elm WSC – Based on survey response, we increased population in all years. We limited population to build out population beginning in 2030.

Venus – All population is in Johnson County (Region G).

Waxahachie – Based on survey response and recent historical population, we increased population in 2010 and 2020.

Fannin County

Bonham – Based on recent historical use, we decreased per capita use in all years.

County Other – No change.

Ector – No change.

Hickory Creek SUD – No change.

Honey Grove – Based on survey response, we increased population in 2020 through 2060.

Ladonia – Based on recent historical population, we decreased population in 2010.

Leonard – No change.

North Hunt WSC – No change.

Savoy – No change.

Southwest Fannin County SUD – Based on survey response and recent historical population, we increased population in all years.

Trenton – No change.

Whitewright – Based on recent historical use, we decreased per capita use in all years.

Freestone County

County Other – No change.

Fairfield – Based on recent historical population, we decreased population in 2010 through 2050.

Flo Community WSC – No change.

Teague – No change.

Wortham – Based on input from Wortham and TWDB input, we increased population in all years.

Grayson County

Bells – Based on recent historical population, we decreased population in 2010 and 2020.

Collinsville – No change.

County Other – No change.

Denison – No change.

Gunter – Based on recent historical population, we decreased population in 2010 through 2040.

Marilee SUD – Based on survey response, we decreased population in 2010 and 2020.

Howe – Based on recent historical population and input from Howe's water provider (GTUA), we decreased population in 2010 through 2040. Based on recent historical use, we decreased per capita use in all years.

Luella WSC – Based on survey response, we decreased population in 2010, 2020, and 2030.

Pottsboro – No change.

Sherman – Based on recent historical use, we decreased per capita use for 2020 through 2060.

South Grayson WSC – No change.

Southmayd – Based on survey response and recent historical population, we decreased population in 2010 through 2050. Based on recent historical use, we increased their very low per capita use in all years.

Southwest Fannin County SUD – No change.

Tioga – No change.

Tom Bean – Based on survey response and recent historical population, we decreased population in 2010 through 2040.

Two Way SUD – No change.

Van Alstyne – Based on recent historical population, we decreased population in 2010 through 2030. Based on recent historical use, we decreased per capita use in all years.

Whitesboro – Based on recent historical population, we decreased population in 2010 through 2050.

Whitewright – Based on recent historical population, we decreased population in 2010 and 2020. Based on recent historical use, we decreased per capita use in all years.

Woodbine WSC – The per capita use in Grayson County was changed slightly to match the per capita use in Cooke County.

Henderson County

Athens – No change.

Bethel-Ash WSC – No change.

County Other – No change.

East Cedar Creek FWSD – Based on survey response, we decreased population in 2010, 2040, 2050, and 2060.

Eustace – Based on input from the City, we decreased population to current level, showing no growth in future years.

Gun Barrel City – Based on recent historical use, we increased per capita use in all years.

Log Cabin – No change.

Mabank – Based on TWDB input, we increased population in all years.

Malakoff – Based on recent historical use, we decreased per capita use in all years.

Payne Springs – No change.

Seven Points – Based on recent historical use, we increased per capita use in all years.

Tool – No change.

Trinidad – No change.

Virginia Hill WSC – No change.

West Cedar Creek MUD – Based on their current meter count from the TCEQ Water Utilities Database and a factor of 3.0 persons per meter, we estimated their current population. From that estimate we revised the future projections proportionately.

Jack County

Bryson – No change.

County Other – No change.

Jacksboro – No change.

Kaufman County

Ables Springs WSC – No change.

College Mound WSC – Based on their current meter count (provided by College Mound WSC) and a factor of 3.0 persons per meter, we estimated their current population. From that estimate we revised the future projections proportionately.

Combine – No change.

Combine WSC – No change.

County Other – We decreased population in all years by the amount of the 2010 population in the new water user group Post Oak Bend City.

Crandall – No change.

Dallas – No change.

Forney – Based on TWDB input, we increased population in all years.

Forney Lake WSC – Based on current population information provided by Forney Lake WSC (via NTMWD form) we lowered population in all years.

Gastonia-Scurry – We decreased population in all years by the amount of population now in the new water user group of Scurry.

High Point WSC – Based on their current meter count from the TCEQ Water Utilities Database and a factor of 3.0 persons per meter, we determined their current population. From that estimate we revised the future projections proportionately.

Kaufman – Based on recent historical use, we increased per capita use in 2010.

Kemp – Based on recent historical population, we increased population in all years.

Mabank – Based on TWDB input, we increased population in all years.

MacBee SUD – No change.

Mesquite – No change.

Oak Grove – No change.

Post Oak Bend City – This is a new WUG. The population shown is TWDB's recommended population. The TWDB suggested a demand of less than 115 gallons per capita per day, so we assumed a base per capita use of 115 gallons per capita per day.

Scurry – This is a new WUG. The population shown is TWDB's recommended population. The population for Scurry was taken from the population of Gastonia-Scurry. The TWDB suggested a demand of less than 115 gallons per capita per day, so we assumed a base per capita use of 115 gallons per capita per day.

Seagoville –Based on recent historical use, we increased per capita use in all years.

Talty – Based on survey response, we decreased population in 2010. Based on recent historical use, we increased per capita use in all years.

Terrell – Based on information from Terrell's Master Plan and information from Terrell's water provider (NTMWD), we increased population in all years.

West Cedar Creek MUD – Based on their current meter count from the TCEQ Water Utilities Database and a factor of 3.0 persons per meter, we estimated their current population. From that estimate we revised the future projections proportionately.

Navarro County

Blooming Grove – Based on TWDB input, we increased population in all years.

Brandon-Irene WSC – No change.

Chatfield WSC – Based on survey response, we decreased population in 2010, 2020, and 2030.

Community Water Company – No change.

Corsicana – Based on TWDB input, we increased population in all years.

County Other – No change.

Dawson – No change.

Frost – Based on survey response, we decreased population in all years.

Kerens – Based on TWDB input, we increased population in all years.

M E N WSC – No change.

Navarro Mills WSC – Based on survey response, we decreased population in all years.

Rice – No change.

Rice WSC – No change.

Parker County

Aledo – Based on survey response, we increased population in all years limiting it to build out beginning in 2050.

Annetta – Based on recent historical use, we increased per capita use in all years.

Annetta South – Based on recent historical use, we increased per capita use in all years.

Azle – No change.

County Other – Population has been decreased by the population of the two new WUGS (Cresson and Sanctuary).

Cresson – This is a new WUG. The population shown is TWDB's recommended population. We used the TWDB suggested demand of 123 gallons per capita per day.

Fort Worth – Based on current population estimates, meetings with City staff, and input from the City Planning Department, we increased population in all years.

Hudson Oaks – Based on the recent special county study[2], we decreased population in all years. Based on recent historical use, we increased per capita use in all years.

Mineral Wells – No change.

Reno – No change.

Sanctuary – This is a new WUG. The population shown is TWDB's recommended population. The TWDB suggested a demand of less than 115 gallons per capita per day, so we assumed a base per capita use of 115 gallons per capita per day.

Springtown – No change.

Walnut Creek SUD – Based on the recent special county study[2], we increased population in all years (after accounting for Sanctuary becoming a WUG).

Weatherford – Based on recent historical population and the recent special county study[2], we increased population in 2010 and 2020.

Willow Park - Based on the recent special county study[2], we increased population in all years.

Rockwall County

Blackland WSC – No change.

Cash SUD – No change.

County Other – No change.

Dallas – No change.

East Fork SUD – No change.

Fate – This is a new WUG. The population shown is TWDB's recommended population. We are using historical per capita data as provided by Fate's water provider (NTMWD).

Forney Lake WSC – Based on current population information provided by Forney Lake WSC (via NTMWD form) we lowered population in all years.

Heath – Based on recent historical use, we increased per capita use in all years.

High Point WSC – Based on their current meter count from the TCEQ Water Utilities Database and a factor of 3.0 persons per meter, we determined their current population. From that estimate we revised the future projections proportionately. Lavon WSC – Based on survey response, we decreased population in 2010 and increased population in 2020, 2030, and 2040.

McLendon-Chisholm – Based on recent historical population, we increased population in 2010 through 2040.

Mt Zion WSC – Based on survey response, we held future population to the 2010 population to account for no projected growth.

R-C-H WSC – Based on survey response, we increased population in all years.

Rockwall – Based on TWDB input, we increased population in all years.

Rowlett – Based on recent historical use, we decreased per capita use in all years.

Royse City – Based on slower recent growth, we slightly decreased population in 2010 and 2020. We also increased population in 2060 to continue future growth trend.

Wylie – Based on TWDB input, we increased population in 2010 through 2040. However, based on the survey response, we held population in 2050 and 2060 to build out population (which was achieved beginning in 2040). Based on recent use information from Wylie's wholesale water provider (NTWMD), we decreased per capita use in all years.

Tarrant County

Arlington – Based on survey response and further input from the City, we decreased population in all years.

Azle – No change.

Bedford – No change.

Benbrook – Based on recent historical population, we increased population in 2010 and 2020.

Bethesda WSC – No change.

Blue Mound – No change.

Burleson – No change.

Colleyville – Based on survey response, we limited population to build out population beginning in 2020.

Community WSC – No change.

County Other – No change.

Crowley – Based on TWDB input, we increased population in all years.

Dalworthington Gardens – No change.

Edgecliff – No change.

Euless – No change.

Everman – Based on recent historical population, we decreased population in 2010. Based on survey response, we limited population to build out population beginning in 2020.

Forest Hill – Based on NCTCOG current population estimate, we revised the 2010 population and revised the future proportionately.

Fort Worth – Based on current population estimates, meetings with City staff, and input from the City Planning Department, we increased population in all years.

Grand Prairie – Based on survey response, we decreased population in all years to reflect a lower build out population. This reduction was taken in all three counties (Dallas, Ellis and Tarrant). Based on survey response, we increased per capita use in all years.

Grapevine – Based on input from city staff, we decreased population in 2020 through 2060, holding population to build out beginning in 2030. Based on recent historical use, we increased per capita use in all years.

Haltom City – Based on current population estimates, we decreased population in 2010. Haslett – Based on recent historical use, we increased per capita use in all years.

Hurst – Based on information from an ongoing impact fee study for Hurst being performed by Freese and Nichols, we limited population to build out population beginning in 2020.

Johnson County SUD – No change.

Keller – Based on survey response, we decreased population in 2010 and 2020 and increased population in remaining years to reflect a higher build out population.

Kennedale – Based on survey response, we decreased population in 2010.

Lake Worth – No change.

Lakeside – No change.

Mansfield – Based on survey response, we increased population in all years. Based on recent historical use, we decreased per capita use in all years.

North Richland Hills – No change.

Pantego – Based on recent historical use, we increased per capita use in all years.

Pelican Bay – Based on TWDB input, we increased population in all years.

Richland Hills – No change.

River Oaks – No change.

Saginaw – Based on TWDB input, we increased population in all years. Based on recent historical use, we decreased per capita use in all years.

Sansom Park Village – No change.

Southlake – Based on survey response, we decreased population in all years.

Watauga – Based on survey response, we decreased population beginning in 2030 to reflect a lower build out population.

Westover Hills – No change.

Westworth Village – Based on TWDB input, we increased population in all years.

White Settlement – We decreased population in 2030.

Wise County

Alvord – Based on TWDB input, we increased population in all years.

Aurora – Based on TWDB input and survey response, we increased population in all years. For 2010 through 2030 we used higher estimates from the survey response. For 2040 through 2060 we used TWDB suggested revisions.

Bolivar WSC – No change.

Boyd – Based on the recent special county study[2], we increased population beginning in 2030 and then limited it to build out population beginning in 2050.

Bridgeport – Based on recent historical population, we decreased population in 2010.

Chico – No change.

Community WSC –No change.

County Other – We decreased population in all years to account for Paradise becoming a water user group.

Decatur – No change.

Fort Worth – Based on current population estimates, meetings with City staff, and input from the City Planning Department, we increased population in all years.

New Fairview – No change.

Newark – No change.

Paradise – This is a new WUG. The population shown is TWDB's recommended population. The TWDB suggested a demand of less than 115 gallons per capita per day, so we assumed a base per capita use of 115 gallons per capita per day.

Rhome – Based on the recent special county study[2], we decreased population in all years. Based on recent historical use, we increased per capita use in all years.

Runaway Bay – Based on the recent special county study[2], we decreased population in all years.

Walnut Creek SUD – Based on the recent special county study[2], we increased population in all years (after accounting for Paradise becoming a WUG).

West Wise Rural SUD – Based on survey response, we decreased population in 2010 through 2030 and increased population for the remaining years.

Glossary

DWU – Dallas Water Utilities

FWSD – Fresh Water Supply District

GTUA – Greater Texoma Utility Authority

MUD – Municipal Utility District

NCTCOG – North Central Texas Council of Governments

NTMWD – North Texas Municipal Water District

SUD – Special Utility District

TRWD – Tarrant Regional Water District

UTRWD – Upper Trinity Regional Water District

WSC – Water Supply Corporation

WUG – Water User Group

References

[1] *Water Supply Study for Ellis County, Johnson County, Southern Dallas County, and Southern Tarrant County,* prepared for Region C Water Planning Group and the Tarrant Regional Water District in Cooperation with the Brazos G Water Planning Group, prepared by Freese and Nichols, Inc., Alan Plummer Associates, Inc., CP&Y, Inc., and HDR, Inc. April 2009.

[2] *Water Supply Study for Parker and Wise Counties,* prepared for Region C Water Planning Group prepared by Freese and Nichols, Inc. April 2009.

Region C Water Planning Group
Steam Electric Power Demand Projections

PROJECT: 0312-041-01

DATE: August 31, 2009

PREPARED FOR: Region C Water Planning Group

PREPARED BY: Alan Plummer Associates, Inc.

Background

The *2006 Region C Plan* (hereafter referred to as the 2006 Plan) included projections for municipal demands, as well as non-municipal demands such as irrigation, livestock, manufacturing, mining, and steam-electric power. As part of the 2011 update to the Region C Water Plan, steam electric power demands were reviewed to determine if changes should be made to the future projections. In the 2006 Plan, projections of the steam electric power demand were based on the analysis of historical trends and Texas Water Development Board (TWDB) draft projections. The power industry reports annual water consumption associated with steam electric power as part of the Texas Water Development Board's Survey of Ground and Surface Water Use.

In 2003, the TWDB in conjunction with a research project team consisting of industry representatives developed "Power Generation Water Use in Texas for the Years 2000 Through 2060" (hereafter referred to as the 2003 Report). The objective and purpose of this research project was to develop improved methodologies for projecting water demands by the steam electric generation water use sector for a 50 year planning horizon, as well as develop actual projections for this sector on a regional and county specific basis throughout the state of Texas. A summary of the methodology utilized in this project is included below. A more detailed outline of the methodology used in the 2003 Report is included in Attachment A.

- An electric demand growth factor was determined from the projections of the Public Utility Commission of Texas. This factor was extrapolated over a 50-year planning period and resulted in a 2% statewide annual electric demand growth rate.

- Consumptive water use for various generating and cooling technologies was determined and applied to 214 generating plants in Texas.

- The base year (2000) water demand for each plant was calculated by taking actual generation by fuel type and applying water use factors. Projections for 2010-2060 were calculated on unit by unit basis.

- The 2010 and 2020 water demand for coal fired, nuclear, and conventional gas was based on 2000 demand adjusted by a correction factor for linear trending. The 2030 – 2060 factors were increased at the same rate despite fuel/generation types.

The projections and methodology of the 2003 Report were utilized during the development of the steam electric power consumption projections included in the 2006 Plan. In cases where historical data appeared to be questionable, basic data was sought to confirm or correct information. A summary of the stream electric power consumption projections from the 2006 Plan is included in Table 1.

Table 1. 2006 Region C Steam Electric Power Water Consumption Projections

	Year						
County	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin County	1,901	1,581	1,260	1,473	1,733	2,050	2,436
Cooke County	0	0	0	0	0	0	0
Dallas County	13,749	12,264	10,842	11,918	13,230	14,829	16,778
Denton County	631	524	418	489	575	680	808
Ellis County	744	14,237	20,379	23,825	28,027	33,148	39,391
Fannin County	5,638	5,152	4,748	5,184	5,717	6,366	7,157
Freestone County	13,004	18,210	20,524	23,999	28,234	33,398	39,692
Grayson County	0	0	0	0	0	0	0
Henderson County	2,465	2,387	2,308	2,376	2,458	2,559	2,681
Jack County	0	0	3,674	4,296	5,053	5,977	7,102
Kaufman County	0	8,979	17,798	20,808	24,478	28,950	34,403
Navarro County	0	0	0	0	0	0	0
Parker County	36	30	4,617	5,397	6,349	7,509	8,923
Rockwall County	0	0	0	0	0	0	0
Tarrant County	4,903	4,158	3,419	4,168	5,081	6,194	7,550
Wise County	0	3,949	5,653	6,609	7,774	9,195	10,927
Region C Total	**43,071**	**71,471**	**95,640**	**110,542**	**128,709**	**150,855**	**177,848**

Recent Studies

In 2008, the TWDB in conjunction with the Bureau of Economic Geology (BEG) developed "Water Demand Projections for Power Generation in Texas" (hereafter referred to as the BEG Report). The BEG Report stated that future water demand in Texas for the electric generation sector depends on: the rate of economic growth and resultant future demand for electric power; the future mix of generation capacity (natural gas combined cycle, pulverized coal, advanced coal, nuclear etc.); whether or not a price is put on carbon dioxide emissions (for mitigation of global warming) such that some power plants have incentive to employ carbon capture and storage technologies; and the extent and success of future efficiency programs.

Considering the difficulties associated with projecting future water demand in the steam electric power industry, the BEG Report attempted to project electric power demand and associated water needs in Texas over the next fifty years using the scenarios described in Table 2. As noted in Figure 1, the base year in the BEG Report is assumed to be the year 2006. The BEG Report compiled water consumption data from the TCEQ for 2006 and the TWDB for 2001-2005 (2006 was not available at the publish date of the BEG Report). A summary of the methodology developed in the BEG Report is included in Figure 1. A more detailed outline of the methodology used in the BEG Report is included in Attachment A.

Table 2. Scenarios for Electricity Generation in Texas

Scenario	Annual Electric Sales Growth*	Natural Gas Prices	Carbon Price causes Carbon Capture to be implemented
1L	Low	High	No
1BAU	BAU	High	No
2L	Low	High	Yes
2BAU	BAU	High	Yes
3L	Low	Low	No
3BAU	BAU	Low	No
4L	Low	Low	Yes
4BAU	BAU	Low	Yes

* L = Low Usage Scenario, BAU = "Business as Usual" Usage Scenario

Figure 1. Water Consumption for Steam-Electric: Projection Methodology from BEG Report

Calculate "Today's" Water (2006)

Given:

- TCEQ data for surface water consumption
  - 2001 – 2006 data (use 2006 values if possible)
- TWDB data for groundwater consumption
  - 2001 – 2005 data
- EIA data for net electricity generation (EIA-920/906)
  - 2001 – 2006 Data (use values to match water data)

Calculate:

- "gal/kWh" for power plant facilities
  - Use greater of 2006 value or average over 2001-2006 time span
  - Estimate for facilities with insufficient data
- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination
- Electricity generated in each county per
  - Fuel type

Near Term Projection (2007-2015)

Given:

- 2006 Results
- Near term plant additions
- PUCT data
- ERCOT data
- TCEQ data

Estimate:

- Capacity factor by power plant (generation unit) type
- Typical values for "gal/kWh" for new plants

Calculate:

- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination
- Electricity generated in each county per
  - Fuel type
- "gal/kWh" per county per fuel type
  - Use of Matlab computer code to take Excel input and then output to Excel

Long Term Projection (2020-2060)

Given:

- Projection for annual electricity generation, per fuel and generation type, for Texas overall

Assume:

- County specific information (from Scenario 2015 1BAU) remains constant
- % of fuel type
- "gal/kWh" per fuel type

Calculate:

- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination

* The method for projecting future water demand for electricity generation starts with 2006 calculations ("today"), moves to a near term projection (through 2015), and then uses the distribution of water demand from 2015 to project into the long term future through 2060.

Projection Discrepancies

A February 2009 memorandum from the TWDB to Jim Parks, Region C Water Planning Group Chair, entitled "Steam-Electric Water Demand Projections For The 2007-2012 Planning Cycle" provides the following analysis of the BEG Report:

> *"At the state level, BEG projections are based on a sound methodology; and although lower in the near-term, they do not differ substantially from projections used in the 2007 State Water Plan over the planning horizon. However, when allocating projected energy generation at the local and regional level, the BEG used assumptions that differ from previous TWDB studies resulting in large deviations from the 2007 State Water Plan. Some of these deviations appear valid; however, some are based on assumptions that do not appear realistic. "*

Accordingly, the memorandum solicits an opinion from each planning group regarding steam electric projections for the 2007-2012 planning cycle. The memorandum requests that Region C determine whether they wish to plan for steam electric demands based on the 2006 Plan projections or the projections provided as Scenario 2L of the BEG Report. Attachment C provides a graphical representation of the discrepancies between the 2006 Plan and the BEG Report.

Region C Methodology

In response to the request from the TWDB memorandum, an analysis of available projections and data was initiated by the Region C Planning Group. After reviewing the background usage data in Region C from the 2003 Report and the BEG Report, data from the TCEQ, TWDB, and several direct reuse providers was requested. In order to gain an accurate comparison of historical consumption between all data sources, the year 2006 was chosen for comparison. 2006 was the only year in which historical usage was available for all data sources.

As noted in Table 3, the historical usage data from all sources is significantly less than the 2006 Plan projections for the year 2006. No one source appears to fully account for all steam electric power plants in Region C. The TCEQ historical data accounts for steam electric power water consumption from steam electric power plants with water rights. The TWDB historical data provides usage on a county wide level, making it difficult to interpret individual plant contributions. The BEG historical data for 2006 attempted to reconcile the TWDB and TCEQ data, but used estimates for plants not accounted for in either data set. For this reason, an attempt was made in this study to collect data on an individual plant basis for the Year 2006 (see "Best Available Data for 2006" column). The "Best Available Data for 2006" column in Table 3 represents the data received from the TCEQ with several exceptions:

- Usage numbers for Spencer (Denton County), FPLE (Kaufman County), and Tractebel (Ellis County) were collected from the reuse provider. The TWDB data does also not appear to account for steam electric power consumption that is satisfied by reuse.
- Usage numbers for Newman, Olinger, Jack, and Freestone were taken from the BEG estimates (no TCEQ data was available).

Table 3. Base Year Comparisons

County	Best Available Data for 2006 (acre-feet/year)*	2006 BEG (acre-feet/year)	2006 TWDB (acre-feet/year)	2006 Plan Projections (acre-feet/year)
Collin	531	531	525	1,709
Cooke	0	0	0	0
Dallas	1,675	1,598	1,443	12,858
Denton	644	395	639	567
Ellis	706	975	0	8,840
Fannin	281	325	361	5,346
Freestone	12,173	10,168	9,936	16,128
Grayson	0	0	0	0
Henderson	57	117	25	2,418
Jack	2,162	2,162	0	0
Kaufman	8,018	5,814	0	5,387
Navarro	0	0	0	0
Parker	0	3	9	32
Rockwall	0	0	0	0
Tarrant	1,300	1,053	3,054	4,456
Wise	2,100	2,205	0	2,369
TOTAL	**29,646**	**25,346**	**15,992**	**60,111**

*Newman (Dallas County), Olinger (Collin County), Jack, and Freestone taken from BEG report - no TCEQ data. Spencer (Denton County), FPLE (Kaufman County), and Tractebel (Ellis County) were collected from the reuse provider.

Senate Bill 1 requires planning efforts to account for the "drought of record" conditions, which typically correspond to below normal rainfall conditions. In some cases this may correspond to a year of high electric consumption. However, as alluded to in the BEG report, many factors, including natural gas prices may affect steam electric power water consumption. The year 2000, which was the base year in the 2003 Report, was representative of a "worst case scenario" year. The year 2000 was both the driest year for the majority of the regions in the state and a year with low natural gas prices. The BEG Report's goal was to use only 2006 TCEQ data because they are the latest available, and 2006 was considered a dry year and thus a good baseline or "worse case scenario" for estimating water diversions for power plants. The BEG Report considered natural gas prices in its scenarios, but not when selecting a base year.

The closing and mothballing of existing plants, the emergence of increased air quality regulations in the early 2000s, and rising natural gas prices likely decreased stream electric power water consumption in Region C from 2000-2006. For the 2011 Planning Cycle, the use of the Year 2000 for a base year is not appropriate for these reasons. The use of the Year 2006 is also not entirely appropriate based on the high natural gas prices. The “Best Available Data for 2006” accounts for more consumption than both the BEG and TWDB collected data for 2006, but is still over 30,000 acre-feet/year less than the 2006 Plan projections. Considering the climatic similarities between the Years 2000 and 2006, it is unlikely that a decrease in natural gas prices would have doubled the stream electric water consumption in 2006. With this information in mind, this study does not attempt to develop projections from a base year, but to modify existing projections to account for the observed 2006 data being roughly half of what was originally projected in the 2006 Plan.

An outline of the data collection procedure and methodology for the 2011 Region C Plan is included in Attachment B. The 2011 Region C Plan methodology for steam electric power demands includes the comparison of the 2006 Plan and BEG Report projections with consideration to both near term and long term demands. In addition to modifying the existing projections to reflect less usage than anticipated in 2006, this study also considers the construction of new plants and the mothballing of existing plants. In the near term the “moth-balling” of the Luminant Northlake plant was considered in the 2010 projections for Dallas County. In addition, the construction of Waxahachie LS Power (Fannin County), Ellis Power (Navarro County), Babcock and Brown (Navarro County), and Corsicana (intake and plant located in Freestone County) Plants were considered in the 2020 projections. Construction of the Panda Plant (Grayson County) was considered in the 2010 projections. The estimated water consumption for these plants and the BEG and 2006 Plan projections by county are included in Table 4. As noted in this table, demand projections for new plants in Grayson and Navarro counties are not included in either the 2006 Plan or the BEG projections.

Table 4. Comparison of Near Term Consumptions Changes and Projections

County	Estimated Near Term Water Consumption Changes* in Region C		2010 Projections (acre-feet/year)		2020 Projections (acre-feet/year)	
	2010 Demand (acre-feet/year)	2020 Demand (acre-feet/year)	BEG	2006 Plan	BEG	2006 Plan
Dallas	-80		3,367	12,264	4,290	10,842
Fannin		+4,480	1,261	5,152	1,169	4,748
Fannin/Grayson**		+6,726	0	0	0	0
Freestone		+4,480	9,323	18,210	7,636	20,524
Grayson	+5,600		0	0	0	0
Navarro		+13,440	0	0	0	0
OVERALL REGION C	**+5,520**	**+29,086**				

* Due to the construction of new plants and the mothballing of existing plants.

**The construction of a new plant in this area would require supply from both counties.

Proposed Projections

After considering which projection best matched both the near term (through 2020) and long term demands (through 2060) for each county, a decision was made to select one of the following:

- Preferred option: If the near term <u>and</u> long term projections for either the BEG or 2006 Plan are reasonable, choose either projection for a county through the duration of the projections (2010-2060).
  Hybrid option: If the near term projection for either the BEG Report or 2006 Plan is reasonable, but the long term projection is not, choose the 2010 projection that is most reasonable and modify the most appropriate projection pattern by adding or deducting the difference from each decade.

The 2006 Plan projections were chosen in the case of Kaufman County in the near term. The BEG Report projections were in chosen in the case of Collin, Dallas, Ellis, Henderson, Parker, Tarrant, and Wise counties in the near term. A hybrid projection was developed for all other counties throughout the planning period in the near term. The BEG Report projections were in chosen in the case of Ellis, Parker, and Wise counties in the long term. A hybrid projection was developed for all other counties throughout the planning period in the long term. This information is displayed graphically in Tables 5 and 6. The proposed 2011 Region C Proposed

Projections are included in the Table 7 with changes shown in red. Figure 2 compares the various projections through 2060. Attachment C includes a county-by-county comparison.

Table 5. Near Term Decision

County	BEG Report	2006 Plan	Hybrid	No Demand
Collin*	X			
Cooke				X
Dallas*	X			
Denton*			X	
Ellis*	X			
Fannin			X	
Freestone			X	
Grayson			X	
Henderson	X			
Jack			X	
Kaufman*		X		
Navarro			X	
Parker*	X			
Rockwall*				X
Tarrant*	X			
Wise	X			

* Denotes a non-attainment county.

Table 6. Long Term Decision

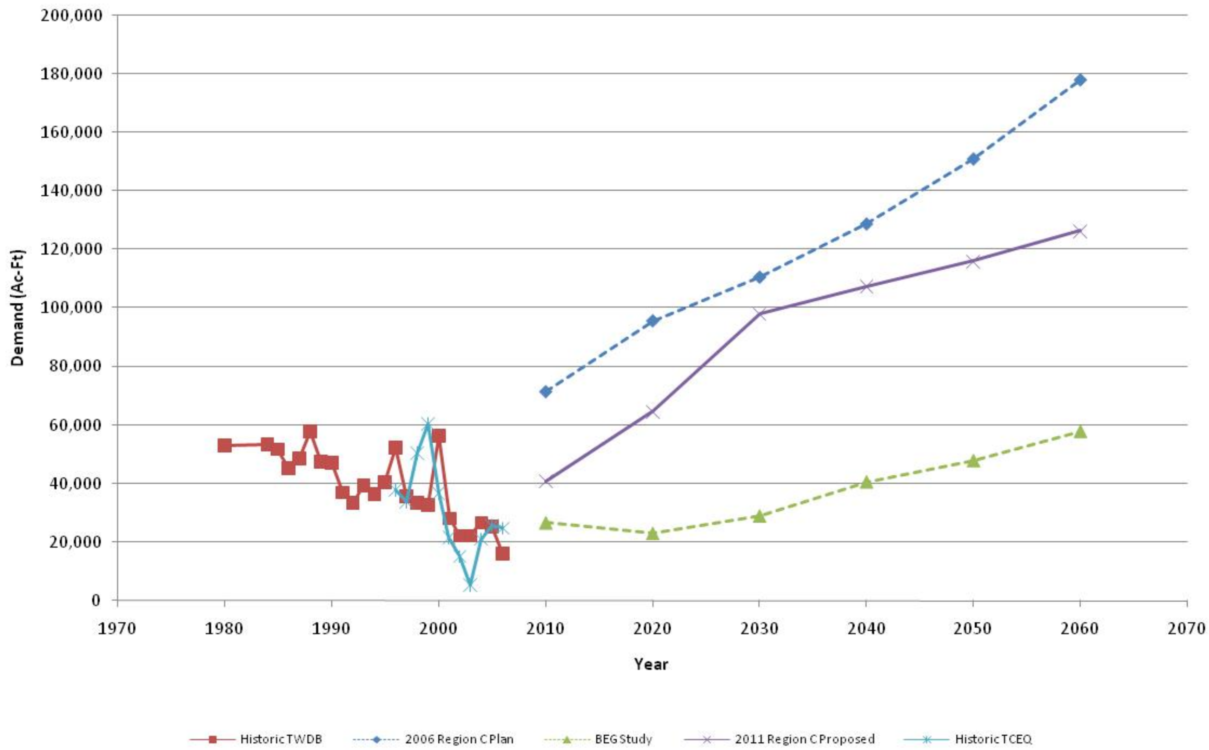
County	BEG Report	2006 Plan	Hybrid	No Demand
Collin*			X	
Cooke				X
Dallas*			X	
Denton*			X	
Ellis*	X			
Fannin			X	
Freestone			X	
Grayson			X	
Henderson			X	
Jack			X	
Kaufman*			X	
Navarro			X	
Parker*	X			
Rockwall*				X
Tarrant*			X	
Wise	X			

* Denotes a non-attainment county.

Table 7. Proposed 2011 Region C Projections

	2011 Region C Proposed					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	771	715	1,000	1,200	1,600	2,000
Cooke	0	0	0	0	0	0
Dallas	3,367	4,290	11,918	12,000	12,000	12,000
Denton	644	744	844	944	1,044	1,144
Ellis	981	698	1,450	3,741	5,754	7,878
Fannin	1,261	6,363	11,474	11,910	12,443	13,092
Freestone	12,173	18,210	20,524	23,999	28,234	33,398
Grayson	5,600	8,963	12,326	12,326	12,326	12,326
Henderson	460	427	7,000	8,000	9,000	10,000
Jack	2,162	2,500	2,700	2,900	3,100	3,300
Kaufman	8,979	10,000	10,000	10,000	10,000	10,000
Navarro	0	8,000	13,440	13,440	13,440	13,440
Parker	24	22	28	56	75	102
Rockwall	0	0	0	0	0	0
Tarrant	2,640	2,448	4,168	5,000	5,000	5,000
Wise	1,751	1,245	1,216	1,878	2,042	2,748
Region C Total	40,813	64,625	98,088	107,394	116,058	126,428

Figure 2. Comparison of Region C Steam Electric Water Use Projections



Attachment A

Projection Methodologies

Water Use Projection Methodology
Power Generation Water Use in Texas – 2000-2060
2003 Report

1. Projected electric demands statewide (assume all generation occurs in Texas)
    a. Determined electric demand growth factor from projections of Public Utility Commission of Texas. Extrapolated over 50-year planning period.

    b. Determined per capita electric use factor from existing data (population and total electric use) for last two decades. Used that factor with TWDB population projections to get total electric use through 2060.

    c. Two methods yielded similar results. Used 1.a. Believed most reliable. Resulted in 2% statewide annual electric demand growth rate.

2. Determined statewide water requirements.
    a. Determined consumptive water use for various generating and cooling technologies. Applied to 214 generating plants in Texas. Gave water demand projections (low, medium, and high) through 2060. Selected medium scenario.

3. Water demand for each generating plant in Texas estimated as a percentage of statewide demand.

    a. For base year (2000) water demand for each plant was calculated by taking actual generation by fuel type and applying water use factors. Projections for 2010-2060 calculated on unit by unit basis.

    b. 2010 and 2020 water demand for coal fired, nuclear, and conventional gas based on 2000 demand adjusted by a correction factor for linear trending.

    c. For 2030 – 2060 factors were increased at the same rate despite fuel/generation types.

4. Individual plant projections were summed by county/region.

Water Use Projection Methodology
Power Generation Water Use in Texas
2010-2060
BEG Report

1) **Current Consumption:** Consumption data was obtained from TCEQ and TWDB concerning water intake, diversion, and return of surface and groundwater.
    a. The TCEQ data was given preference due to the year 2006 being available for analysis. However, the TCEQ data only accounted for about half of the electricity produced in Texas. Water consumption and electrical generation was calculated for the single year of 2006 as a "worst case scenario."

    b. In addition to the TCEQ 2006 data, average water consumption values from 2001-2006 were calculated from the TCEQ data and average values from 2001-2005 were calculated from the TWDB data. Both averages were divided by the electricity generated at a facility within the years of interest. This step provided more data, but some plants were still left with no information.

    c. For power plants with no TCEQ/TWDB data, gal/kWh factors were assigned depending on the type of plant.

Fuel	Prime Mover	Once-through or Cooling Tower?	Water consumption rate (gal/kWh)
NG	CC	cooling tower	0.23
NG	GT	cooling tower	0.05
NG	ST	cooling tower	0.70
NG	CC	Once-through or recirculating	0.23
NG	GT	Once-through or recirculating	0.05
NG	ST	Once-through or recirculating	0.35
Coal (any)	ST	cooling tower	0.60
Coal (any)	ST	Once-through or recirculating	0.35
Nuclear	ST	Any	0.60

* NG = Natural Gas, CC = Combined Cycle, GT = Gas Turbine, ST = Steam Turbine

2) Near-Term/Long Term Methodology (see figure below):

Calculate "Today's" Water (2006)

Given:

- TCEQ data for surface water consumption
  - 2001 – 2006 data (use 2006 values if possible)
- TWDB data for groundwater consumption
  - 2001 – 2005 data
- EIA data for net electricity generation (EIA-920/906)
  - 2001 – 2006 Data (use values to match water data)

Calculate:

- "gal/kWh" for power plant facilities
  - Use greater of 2006 value or average over 2001-2006 time span
  - Estimate for facilities with insufficient data
- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination
- Electricity generated in each county per
  - Fuel type

Near Term Projection (2007-2015)

Given:

- 2006 Results
- Near term plant additions
- PUCT data
- ERCOT data
- TCEQ data

Estimate:

- Capacity factor by power plant (generation unit) type
- Typical values for "gal/kWh" for new plants

Calculate:

- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination
- Electricity generated in each county per
  - Fuel type
- "gal/kWh" per county per fuel type
  - Use of Matlab computer code to take Excel input and then output to Excel

Long Term Projection (2020-2060)

Given:

- Projection for annual electricity generation, per fuel and generation type, for Texas overall

Assume:

- County specific information (from Scenario 2015 1BAU) remains constant
- % of fuel type
- "gal/kWh" per fuel type

Calculate:

- Ac-ft/yr for each
  - County
  - RWPA
  - Fuel, generator, cooling combination

* The method for projecting future water demand for electricity generation starts with 2006 calculations ("today"), moves to a near term projection (through 2015), and then uses the distribution of water demand from 2015 to project into the long term future through 2060.

Attachment B
2011 Region C Methodology

I. Data Collection – (Annual water or power consumption, type of plant, status to include in a spreadsheet deliverable)

a. Historical
    i. Industry
        1. Major Sources (will cover 85% of 2006 demand in BEG Report)
            a. Luminant – Collin, Lake Ray Hubbard, Northlake, Valley, Big Brown, Trinidad, Eagle Mountain
            b. City of Garland – Olinger, Newman, Lewisville, Spencer
            c. Exelon – Mountain Creek, Handley
            d. FPLE – Janet Sims can request from City of Garland (reuse water from Duck Creek) (APAI has data for all but 2008).
            e. Brazos Electric Power Coop – North Texas, Jack
            f. Wise County Power

        2. Minor Sources (remaining 15% of 2006 demand in BEG Report)
            a. Devon Gas Service, Weatherford Municipal Utility System, City of Fort Worth, City of Whitesboro, Freestone Power Generation – Calpine, USACE – Denison, WM Renewable Energy, ANP Operations, Ennis Tractebel, Rock-Tenn, State Farm Mutual, UTD, City of Denton
    ii. TWDB
        1. Historical data available through 2006.
    iii. TCEQ
        1. Collects historical data on a yearly basis.

b. Historical Estimates (when historical data is not available)
    i. Industry guidance on gal/kwh (modify table from BEG report).

c. Projected Use
    i. 2003 TWDB Report
    ii. BEG Report

II. Decision Process for Region C SEP Water Consumption Projections

a. Near Term Projections
   i. Compare available usage data with base years for 2003 and BEG Reports.
   ii. Compare available usage data with 2010 projections for 2003 and BEG Reports.
   iii. Consider climatology (precipitation and temperature), natural gas prices, etc. while analyzing historical data. Use allocated water rights as a "sanity check."
   iv. On a county-by-county basis, identify the 2010 projection (2003 or BEG Report) that is mostly likely to correspond to the base year.

b. Long Term Projections
   i. Consider county specific growth limitations
      1. Mothballing of plants, non-attainment counties, water rights
   ii. Consider planned plants/expansions of existing plants. Use allocated water rights as a "sanity check."
   iii. On a county-by-county basis, identify the projection pattern that is most likely to correspond to future demand projections.

c. County-by-county Decision
   i. After considering which projection best matches both the near term and long term demands for each county, make the following choice:
      1. Preferred option: If the near term and long term projections for either the BEG or 2003 report are reasonable, choose either projection for a county through the duration of the projections (2010-2060).
      2. Hybrid option: If the near term projection for either the BEG or 2003 report is reasonable, but the long term projection is not, choose the 2010 projection that is most reasonable and modify the most appropriate projection pattern by adding or deducting the difference from each decade.

Attachment C
Projection Comparisons
Including Proposed Region C 2011 Projections

Figure A-1. Region C Steam Electric Power Demands

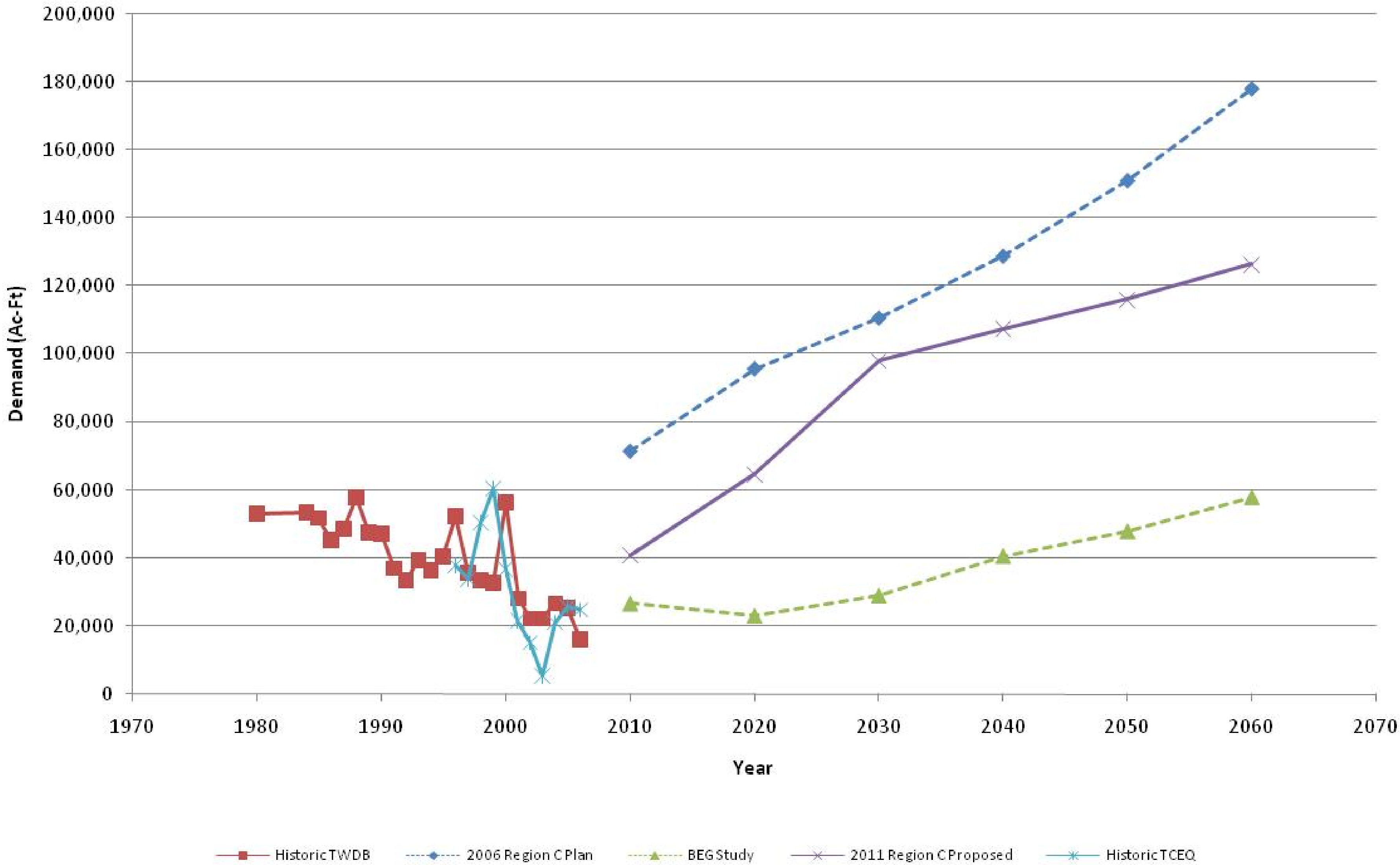


Figure A-2. Collin County Steam Electric Power Demands

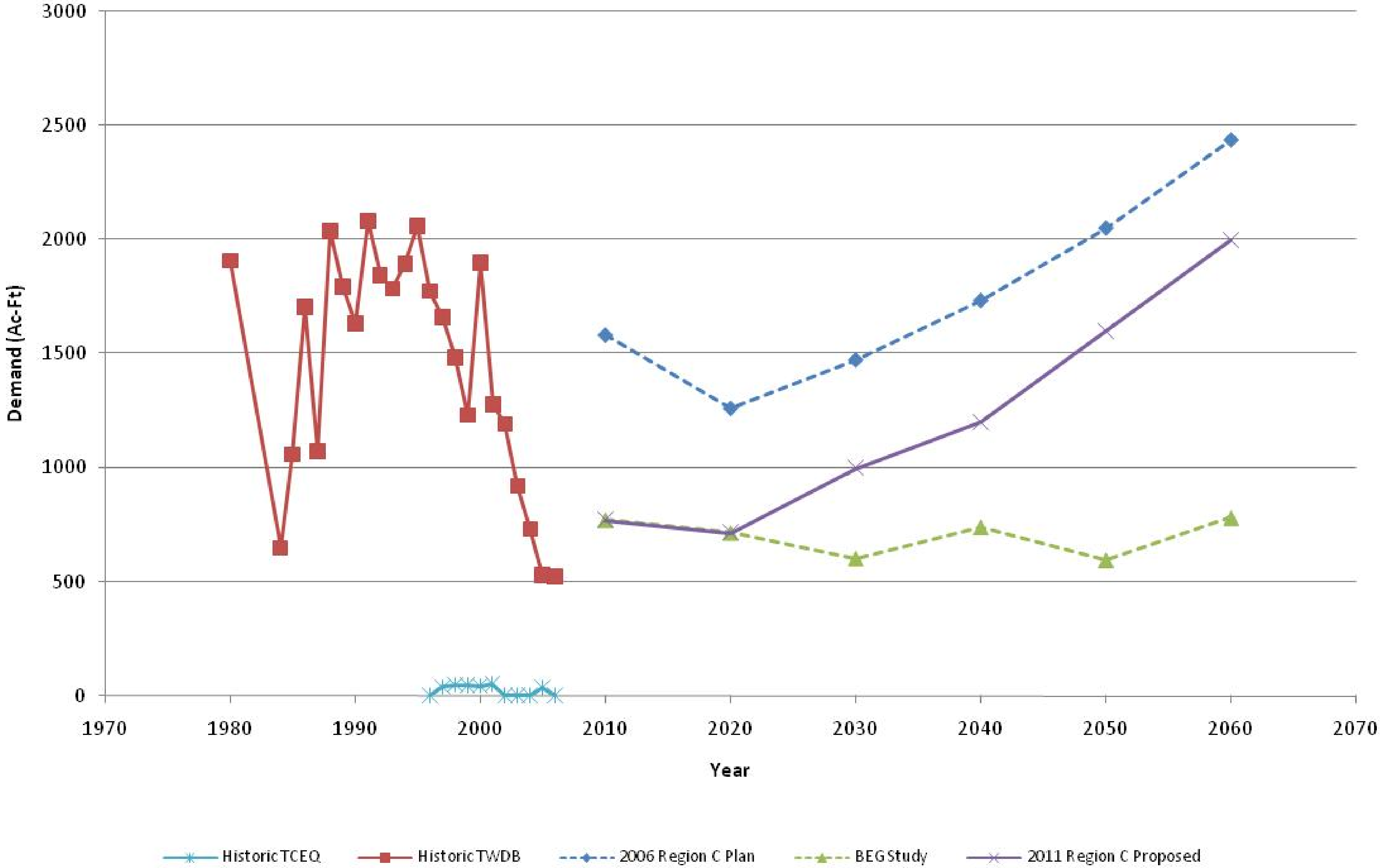


Figure A-3. Cooke County Steam Electric Power Demands

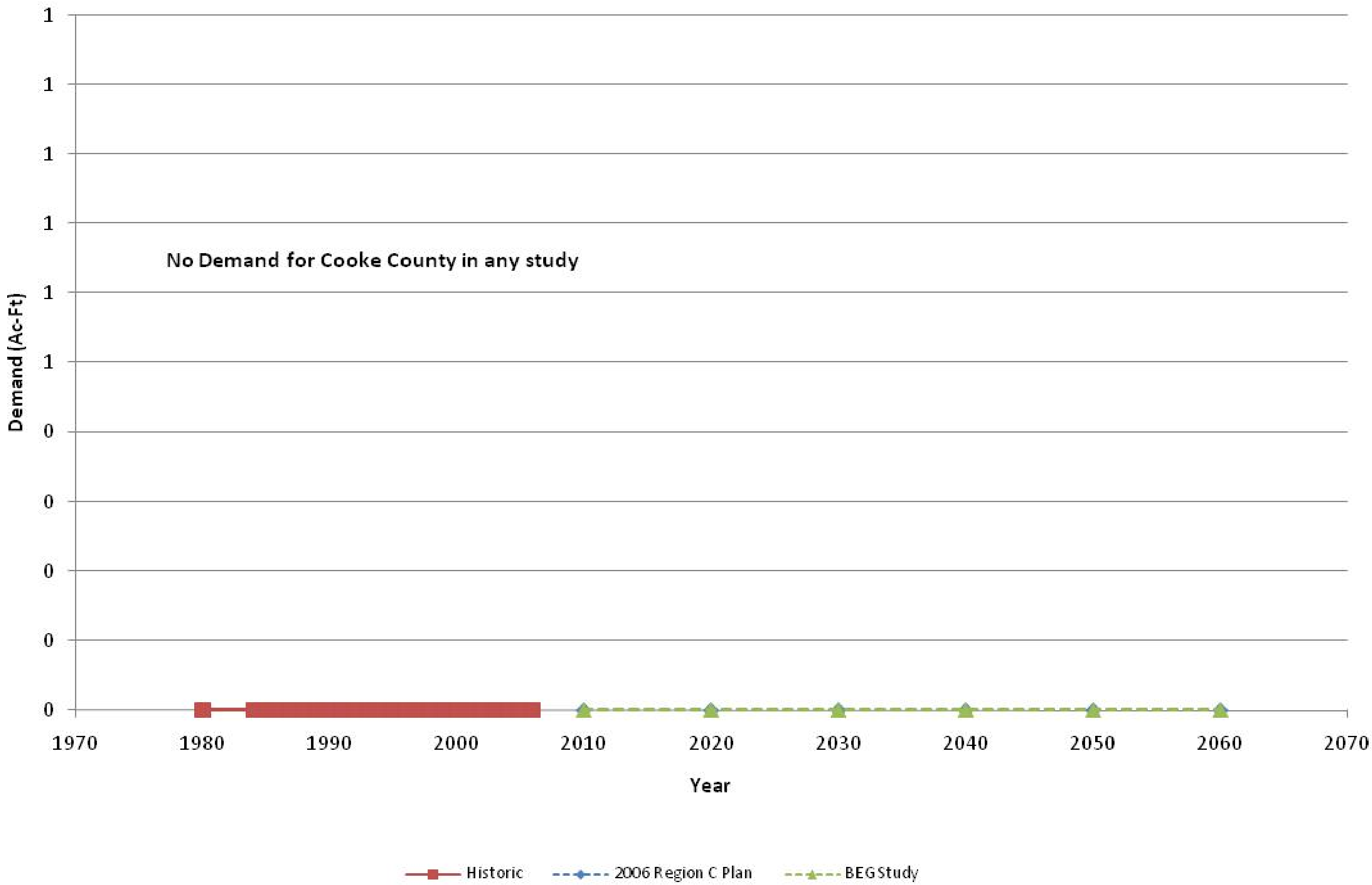


Figure A-4. Dallas County Steam Electric Power Demands

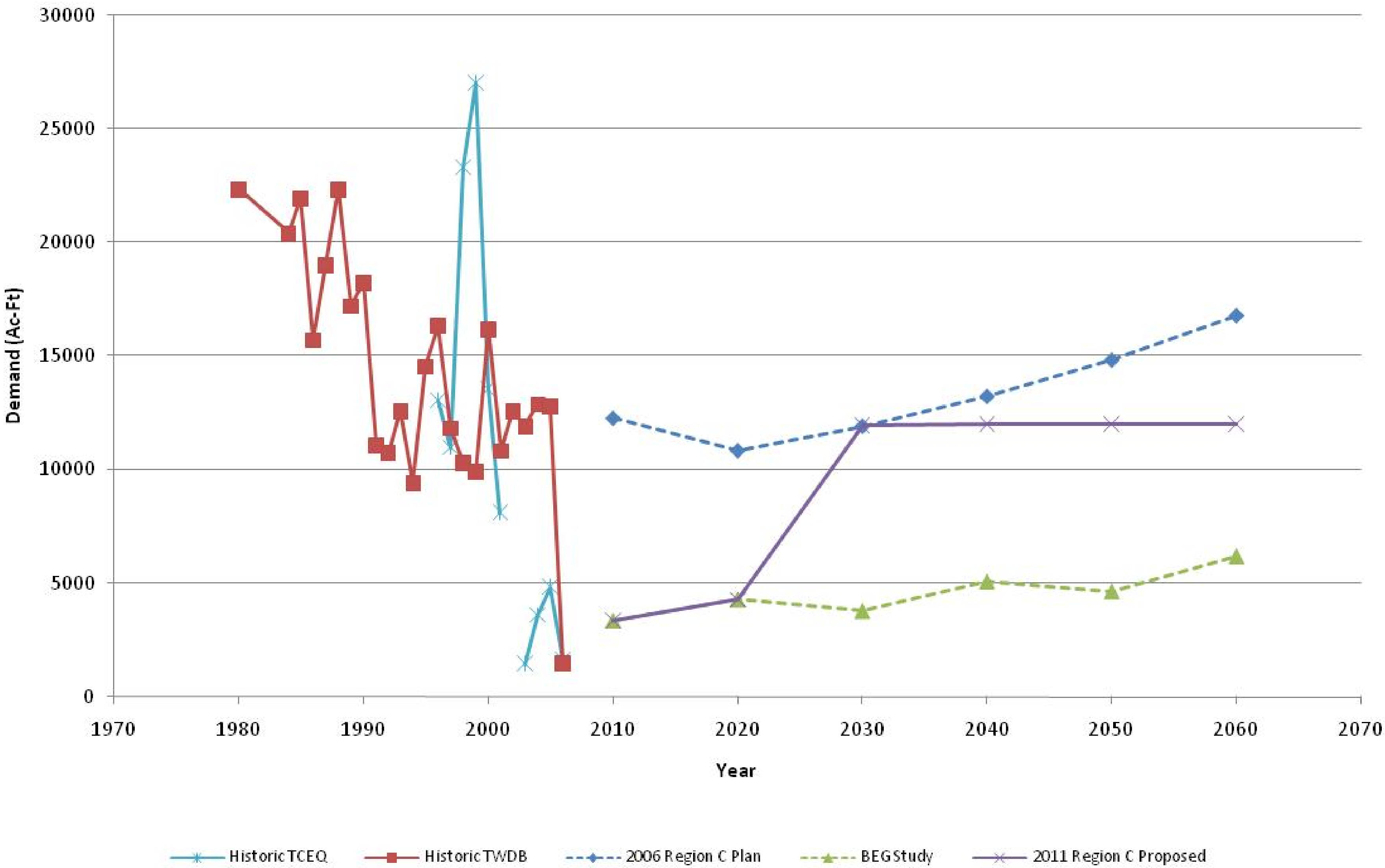


Figure A-5. Denton County Steam Electric Power Demands

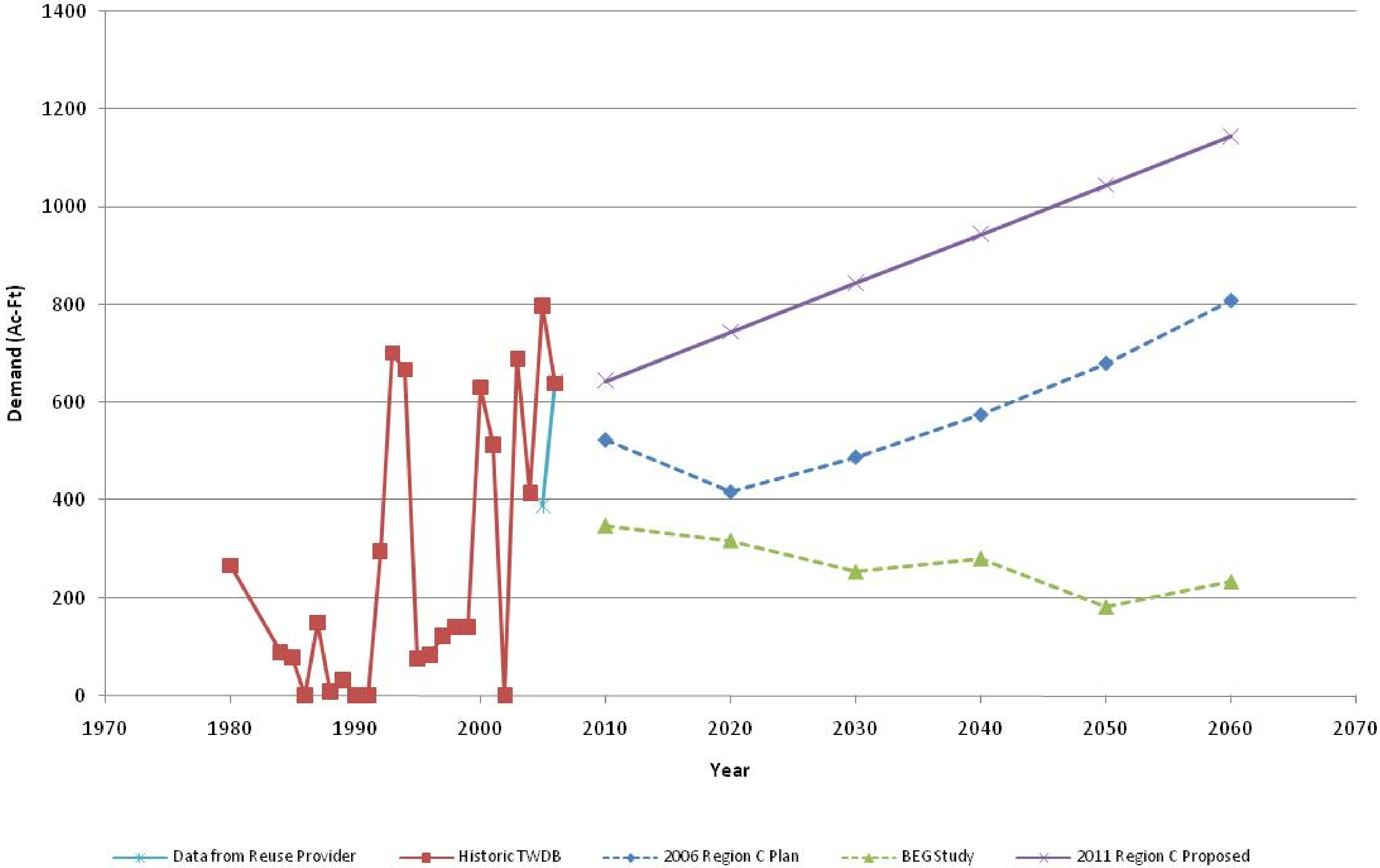


Figure A-6. Ellis County Steam Electric Power Demands

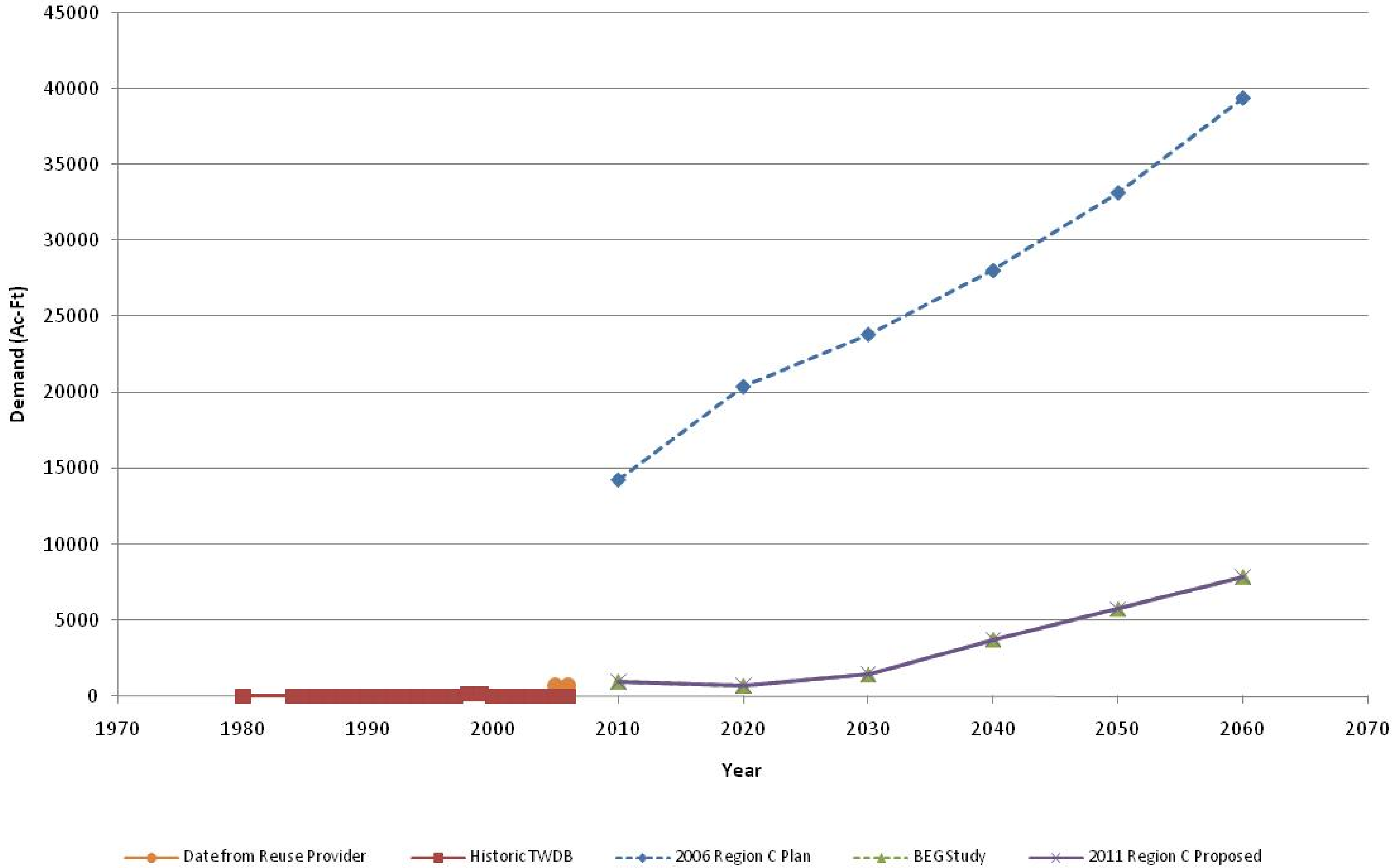


Figure A-7. Fannin County Steam Electric Power Demands

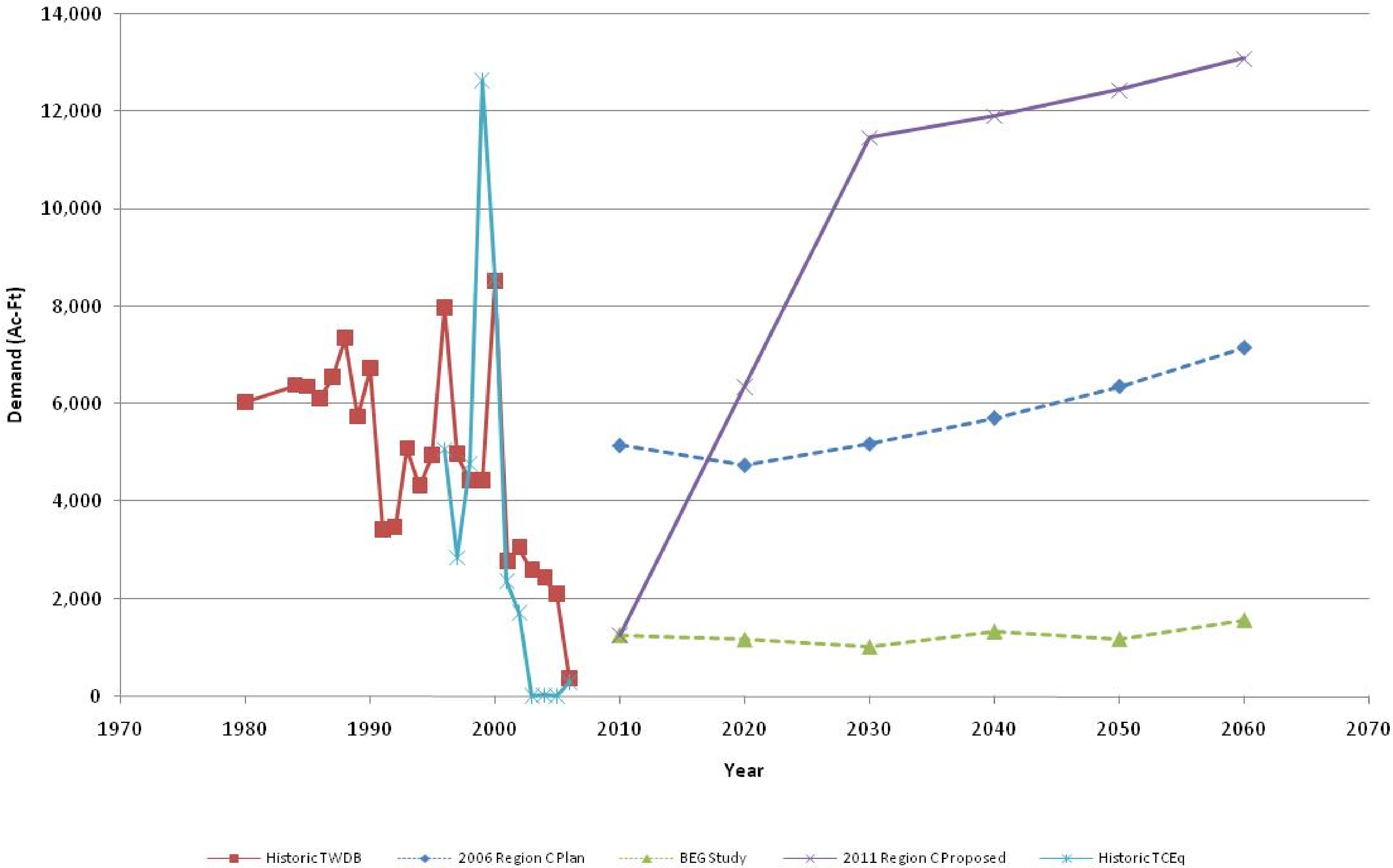


Figure A-8. Freestone County Steam Electric Power Demands

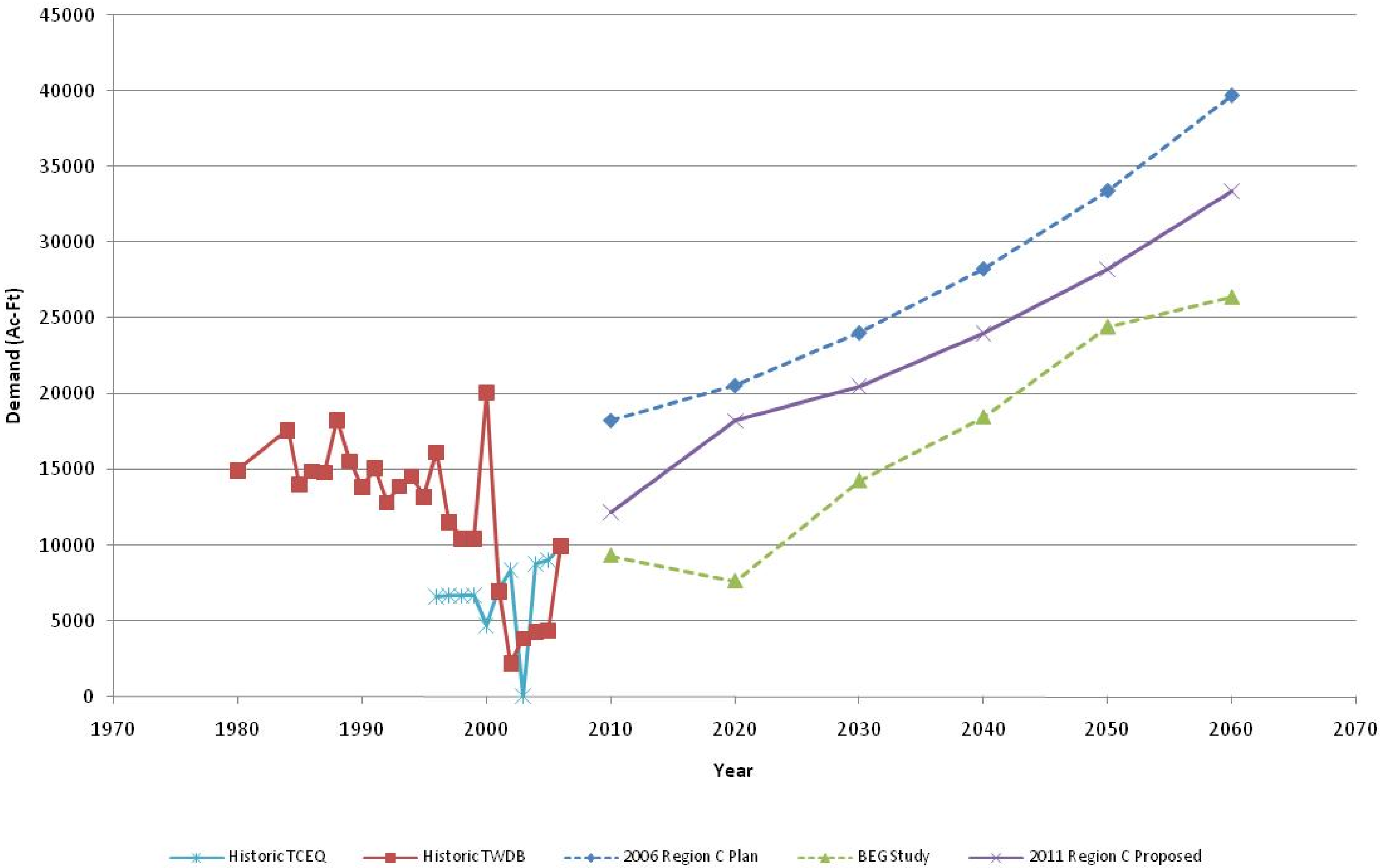


Figure A-9. Grayson County Steam Electric Power Demands

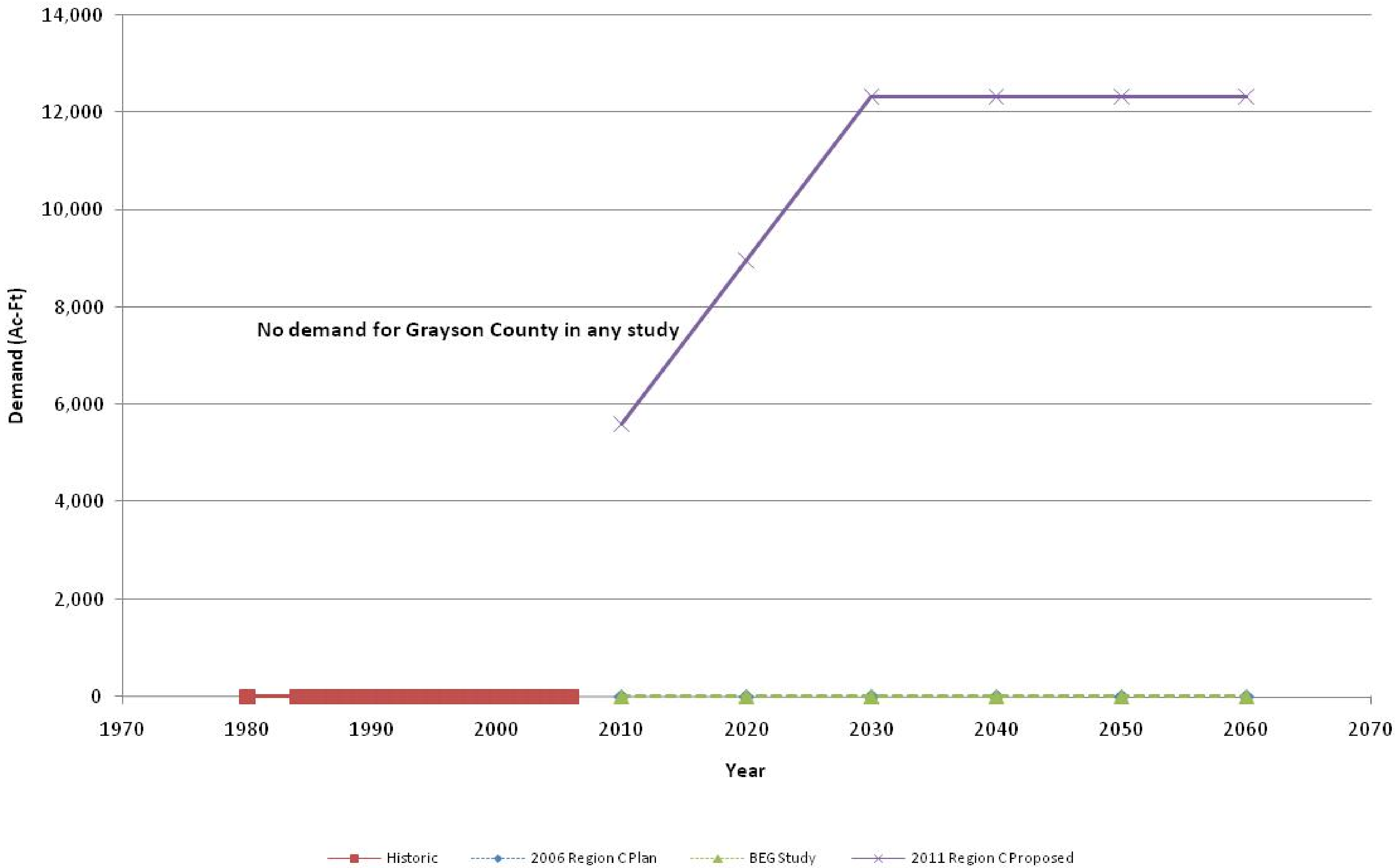


Figure A-10. Henderson County Steam Electric Power Demands

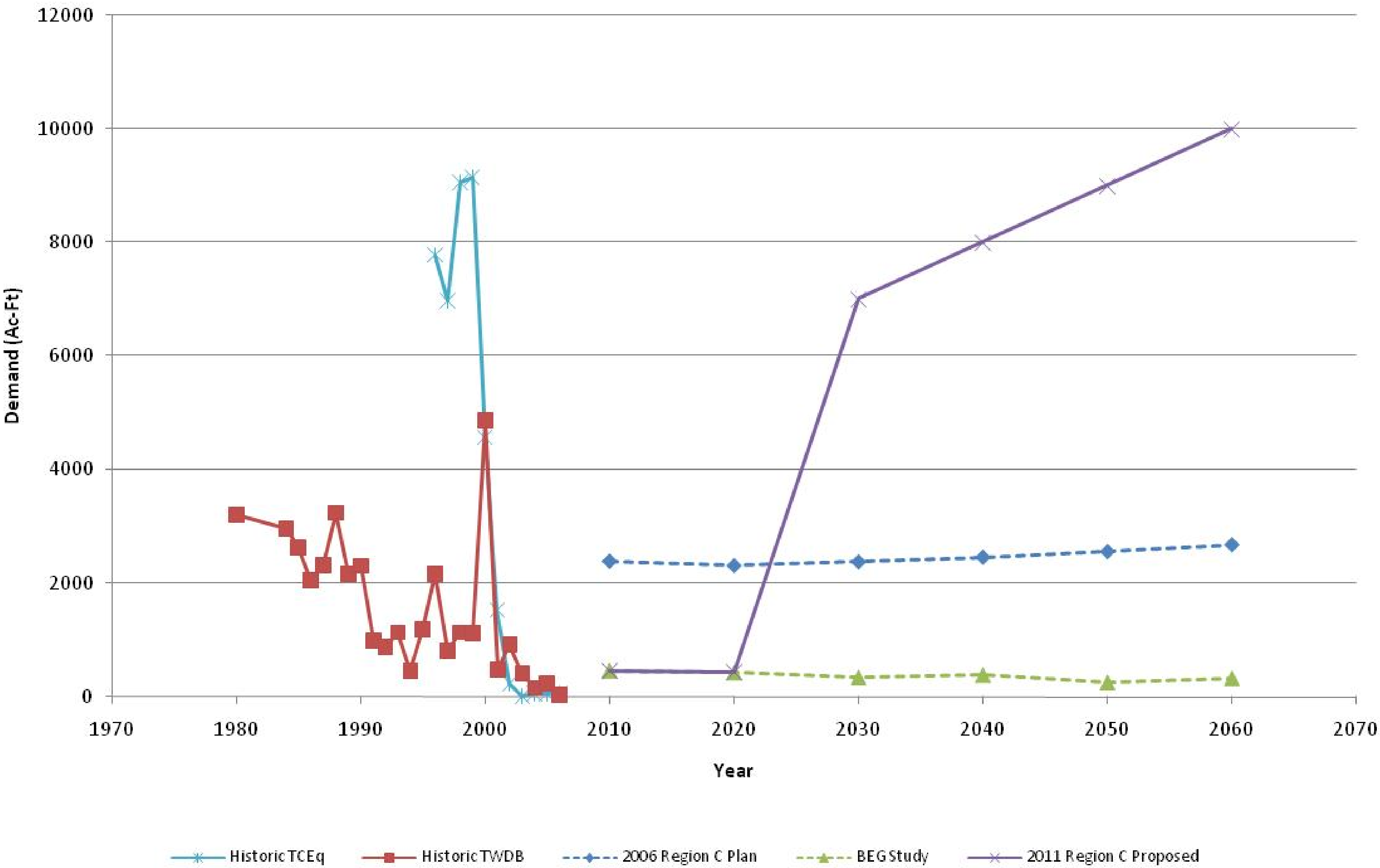


Figure A-11. Jack County Steam Electric Power Demands

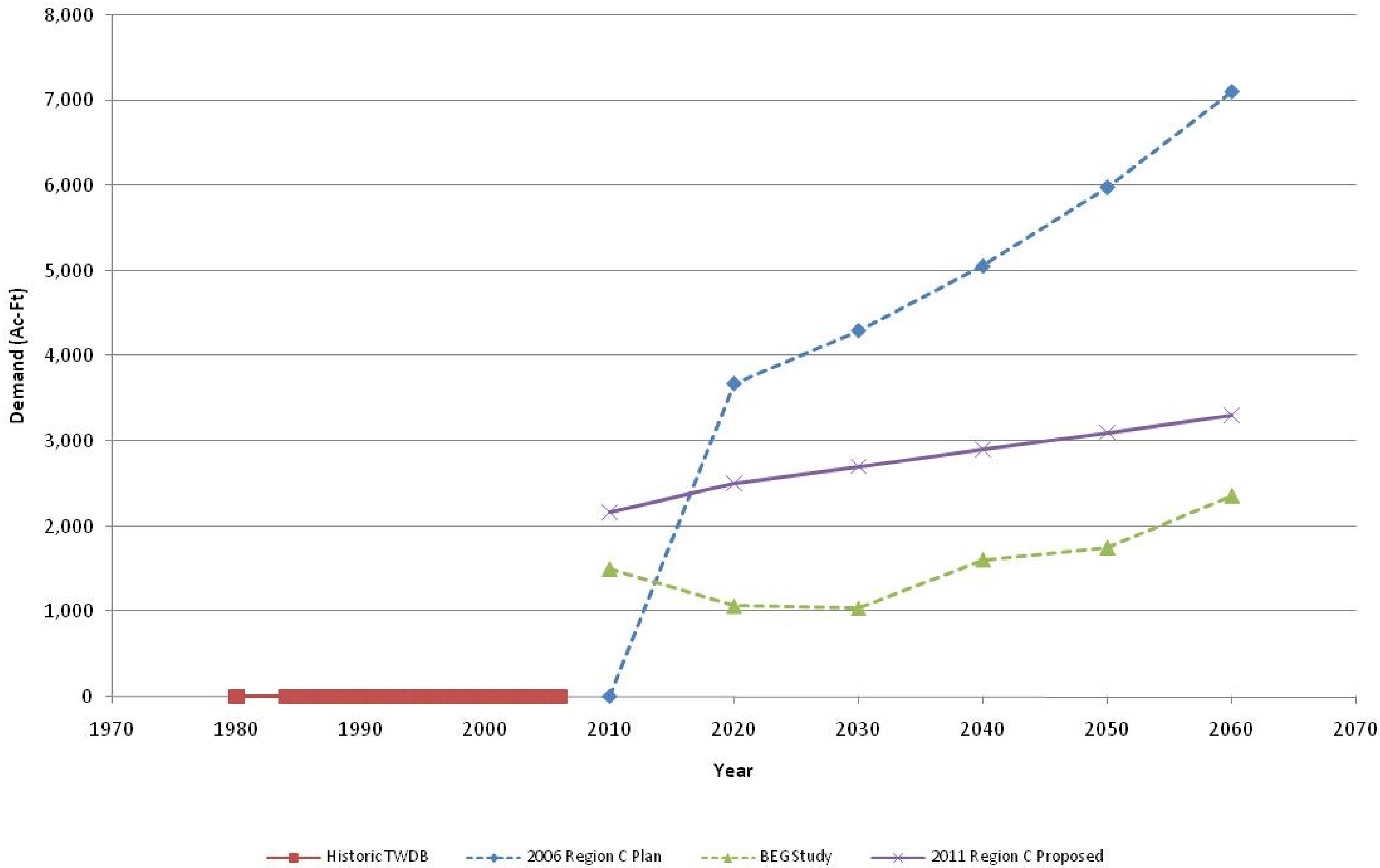


Figure A-12. Kaufman County Steam Electric Power Demands

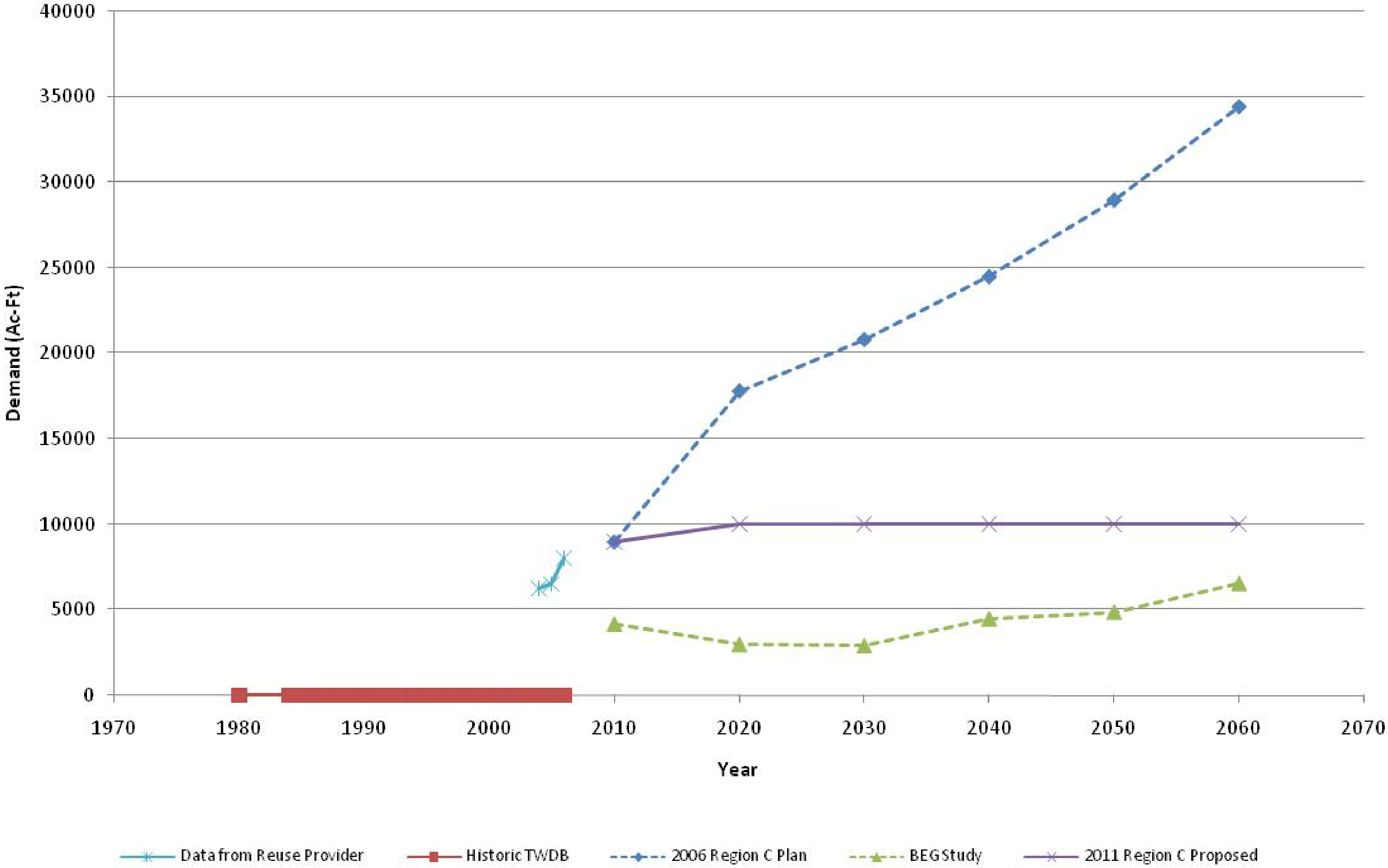


Figure A-13. Navarro County Steam Electric Power Demands

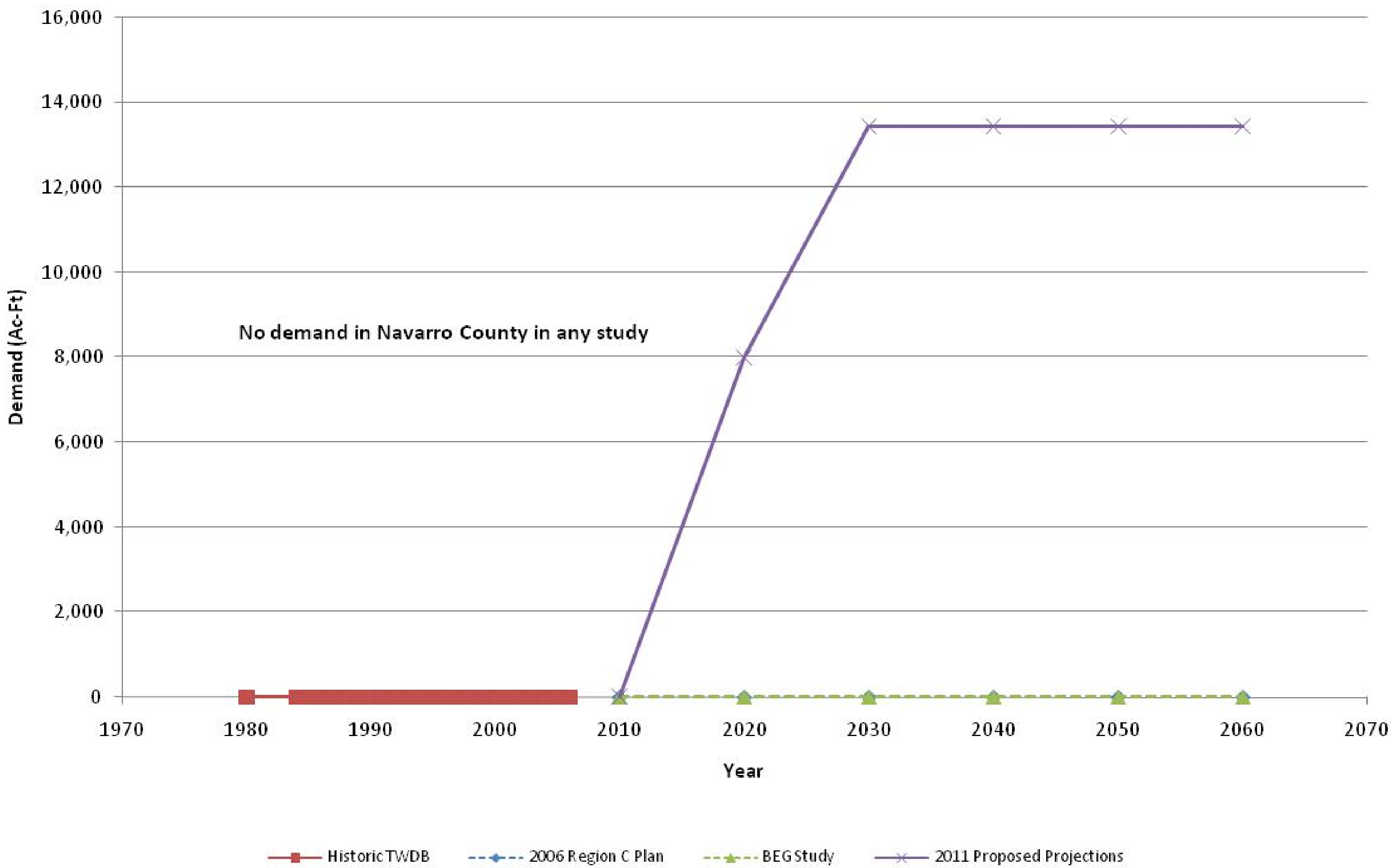


Figure A-14. Parker County Steam Electric Power Demands

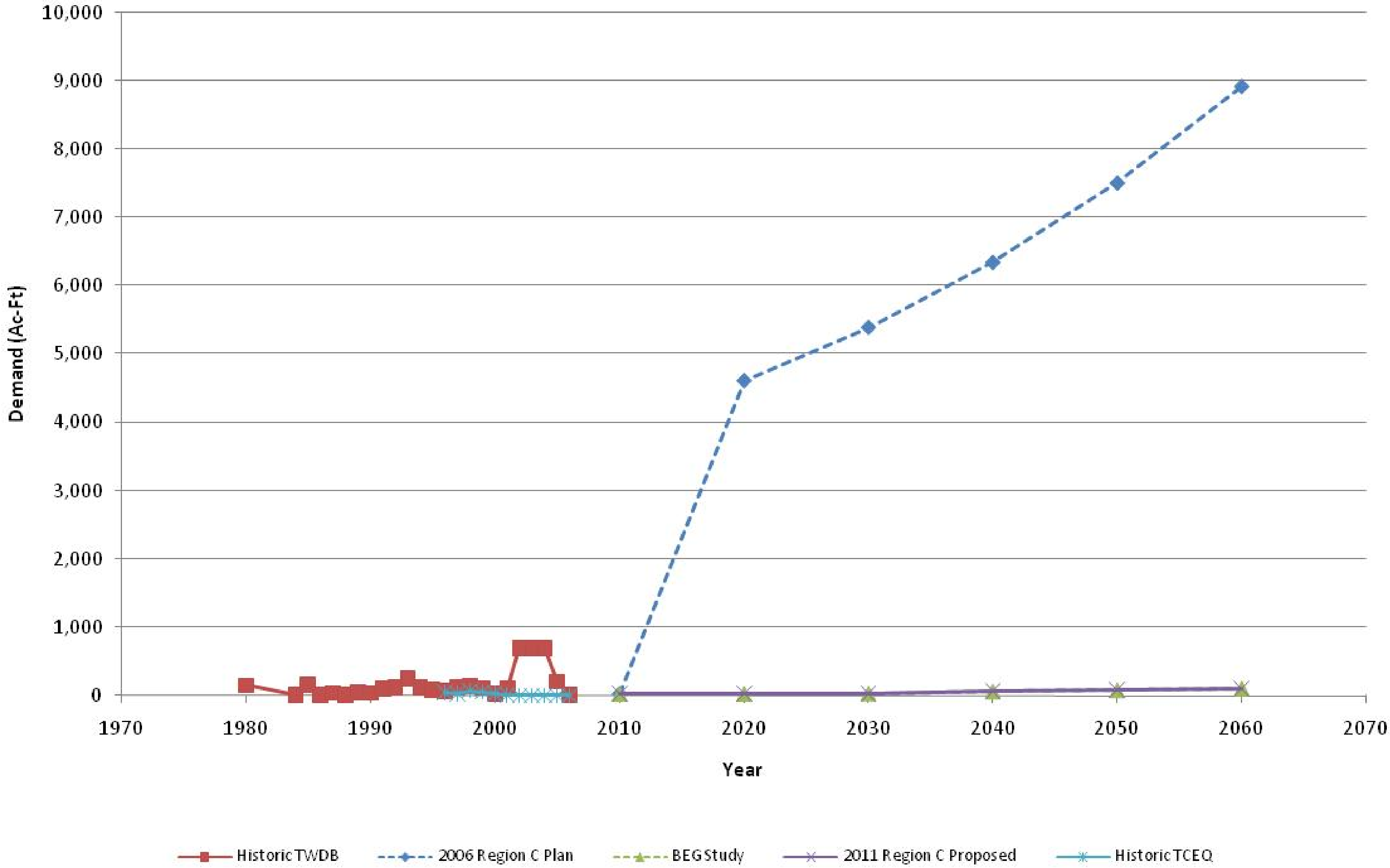


Figure A-15. Rockwall County Steam Electric Power Demands

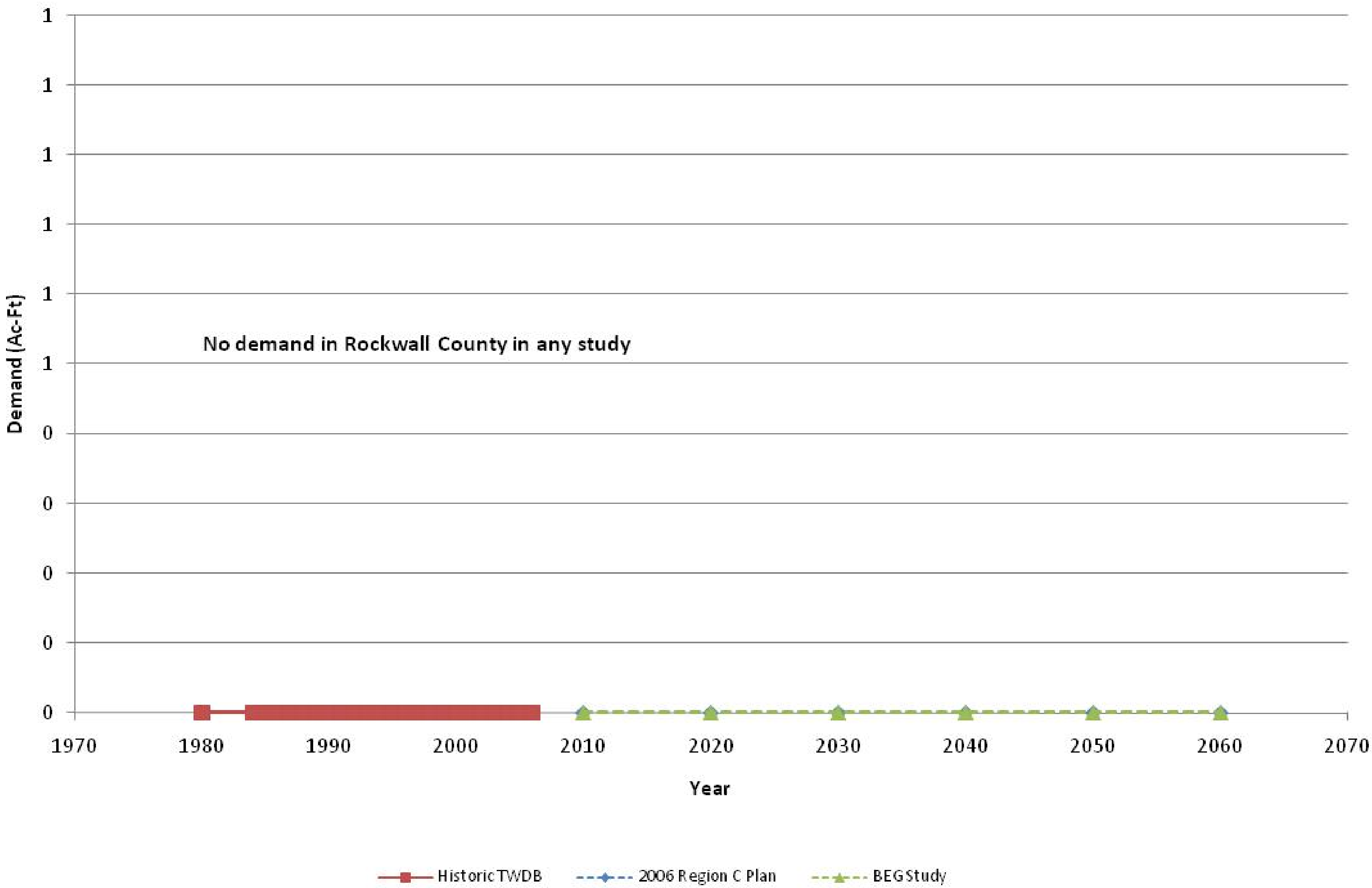


Figure A-16. Tarrant County Steam Electric Power Demands

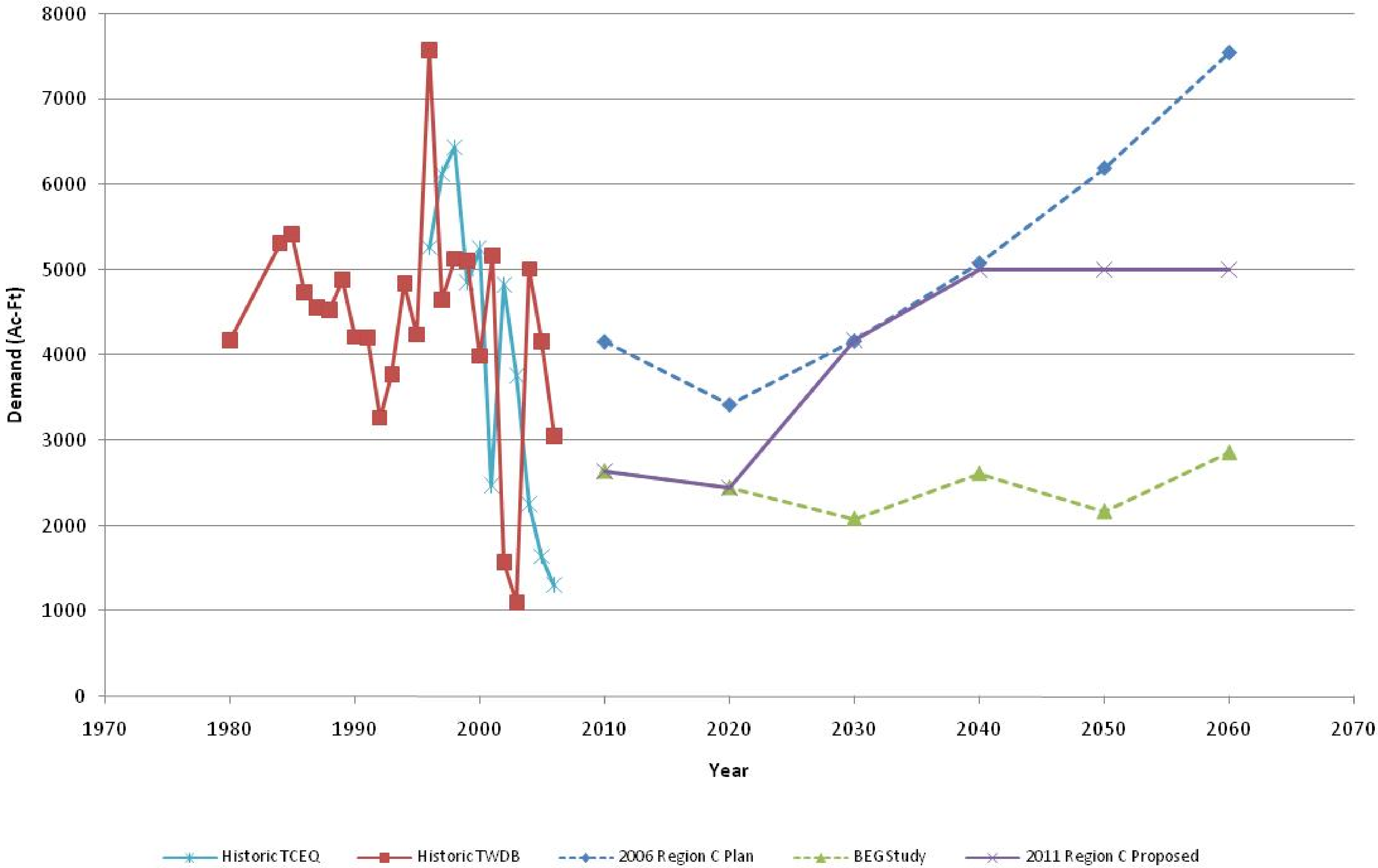
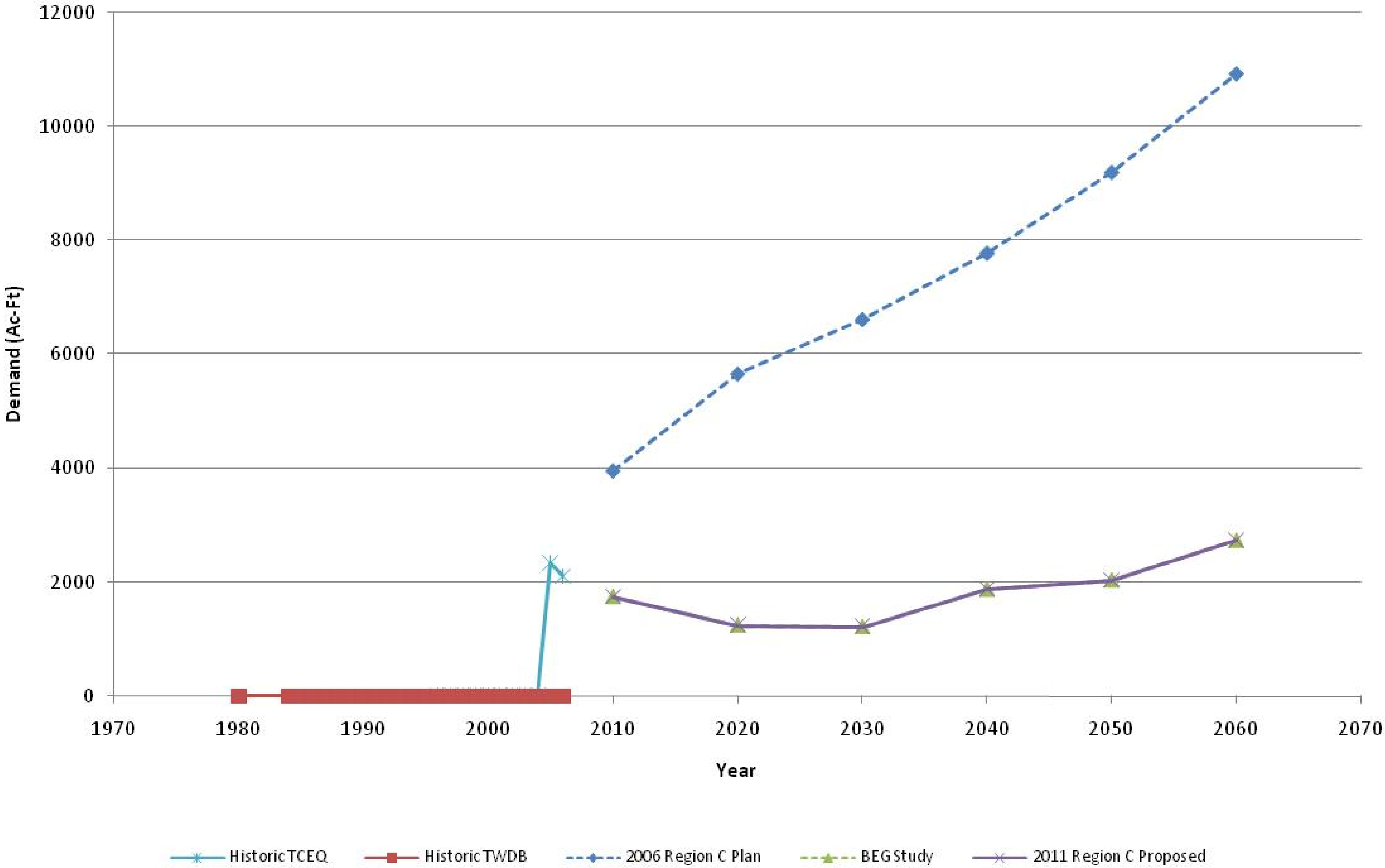


Figure A-17. Wise County Steam Electric Power Demands



Attachment D
Projection Summary Table

Basic Info			Regulatory Information				Historical																			
							Reclaimed Water Consumption					TCEQ Water Consumption								TWDB Water Consumption						
County	Company	Plant Name	Water Right No.	Diversion Amount Value (acre-feet/year)	Status	Non-attainment county?	2004 Usage (acre-feet/year)	2005 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2007 Usage (acre-feet/year)	2008 Usage (acre-feet/year)	2000 Usage (acre-feet/year)	2001 Usage (acre-feet/year)	2002 Usage (acre-feet/year)	2003 Usage (acre-feet/year)	2004 Usage (acre-feet/year)	2005 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2007 Usage (acre-feet/year)	2000 Usage (acre-feet/year)	2001 Usage (acre-feet/year)	2002 Usage (acre-feet/year)	2003 Usage (acre-feet/year)	2004 Usage (acre-feet/year)	2005 Usage (acre-feet/year)	2006 Usage (acre-feet/year)
Collin	City of Garland	Ray Olinger	32	2,000		yes						42	52	0	0	0	35	0	28	1,901	1,278	1,194	923	734	530	525
	Luminant Generation Company LLC	Collin			mothballed in 2004	yes																				
Dallas	City of Garland	CE Newman				yes														16,165	10,817	12,541	11,902	12,874	12,775	1,443
	Exelon Generation Co LLC	Mountain Creek	3408	6,400		yes						4,732	1,334	1,627	1,439	1,084	1,258	696	648							
	Luminant Generation Company LLC	Lake Hubbard	43	4,500		yes						5,153	1,684	414,583	0	817	731	705	688							
	Luminant Generation Company LLC	North Lake	2365/1932	1000/9550	planned to mothball, currently operational	yes						1,801	4,293	1,470	0	1,691	2,857	247	408							
	Rock-Tenn	Rock-Tenn Dallas Mill				yes																				
	State Farm Mutual Auto Insurance Co	State Farm Insurance Medical Center				yes																				
	University of Texas at Dallas	UTD				yes																				
	Exelon Power	Mountain Creek			planned	yes																				
	?	Parkdale			mothballed?	yes						1,859	781	0	0	0	0	0	0							
Denton	City of Denton	Ray Roberts	2335	?	mothballed?	yes														631	514	0	689	415	799	639
	City of Garland	Lewisville	1780		mothballed?	yes																				
	City of Garland	Spencer				yes		388	644	173																
	WM Renewable Energy LLC	DFW Gas Recovery				yes																				
Ellis	ANP Operations Co	Midlothian Energy Facility				yes														0	0	0	0	0	0	0
	Ennis Tracetebel Power Co LLP	Ennis Tracetebel Power Co LLP				yes		708	706	861																
	?	Waxahachie			planned	yes																				
Fannin	Valley NG Power Company LLC (Luminant)	Valley	4900	16,400		no						8,549	2,362	1,708	0	13	1	281	208	8,525	2,768	3,051	2,585	2,440	2,104	361
	LS Power	LS Power			planned	no																				
Fannin/ Grayson	Merchant Power Plant	-			planned	no																				
Freestone	Big Brown Power Company LLC (Luminant)	Big Brown	5040	14,150		no						4,692	7,021	8,352	0	8,761	9,008	9,936	9,543	20,130	6,941	2,164	3,794	4,289	4,350	9,936
	Calpine - Freestone Power Generation LP	Calpine				no																				
	Luminant	Big Brown Update			planned	no																				
Grayson	City of Whitesboro	Whitesboro				no														0	0	0	0	0	0	0
	USCE - Tulsa District	Denison				no																				
	Panda Energy	Sherman			planned	no																				
Henderson	Luminant Generation Company LLC	Trinidad	4970	4,000		no						4,557	1,521	219	0	46	42	57	70	4,860	464	910	410	150	230	25
	Luminant Generation Company LLC	Forest Grove			mothballed?	no						0	0	0	0	0	0	0	0							
Jack	Brazos Electric Power Coop Inc	Jack Energy Facility	18?			no														0	0	0	0	0	0	0
	Gamesa Energy	Barton Chapel Wind 1			planned	no																				
Kaufman	FPLE Forney LLP	Forney Energy Center				yes	6,265	6,522	8,018											0	0	0	0	0	0	0
Navarro	Ellis Power	Ellis Power			planned	no														0	0	0	0	0	0	0
	Babcock and Brown (Navarro Energy)	Babcock and Brown (Navarro Energy)			planned	no																				
	?	Corsicana			planned	no																				
Parker	Brazos Electric Power Coop Inc	North Texas	2147	75		yes						28	6	2	0	0	0	0	0	36	110	703	703	703	209	9
	Weatherford Mun Utility System	Weatherford				yes																				
Tarrant	City of Fort Worth	Village Creek WWTP				yes														3,988	5,165	1,573	1,102	5,010	4,157	3,054
	Exelon Generation Co LLC	Handley	3391	10,120		yes						3,890	2,026	3,256	2,664	1,807	1,510	1,300	1,008							
	Luminant Generation Company LLC	Eagle Mountain	451	4,636		yes						1,362	450	1,573	1,097	448	125	0	0							
	?	North Main			mothballed?	yes																				
Wise	Devon Gas Service	Bridgeport Gas Processing Plant	18?	?		no														0	0	0	0	0	0	0
	Wise County Power Co LP	Wise County Power LP	2273	?		no						0	0	6	0	0	2,333	2,100	1,241							
TOTAL												**36,666**	**21,530**	**432,795**	**5,200**	**14,668**	**17,899**	**15,322**	**13,842**	**56,236**	**28,057**	**22,136**	**22,108**	**26,615**	**25,154**	**15,992**

Basic Info			Past Projections												Comparison of 2006 Projections/ Actual Consumption					
			2006 Region C Water Demand Projections						2006 BEG Water Demand Projections						Reclaimed Sources	TCEQ	TWDB	BEG	2006 Region C Plan Projections	Best Available Sources - Actual Usage
County	Company	Plant Name	2010 Usage (acre-feet/year)	2020 Usage (acre-feet/year)	2030 Usage (acre-feet/year)	2040 Usage (acre-feet/year)	2050 Usage (acre-feet/year)	2060 Usage (acre-feet/year)	2010 Usage (acre-feet/year)	2020 Usage (acre-feet/year)	2030 Usage (acre-feet/year)	2040 Usage (acre-feet/year)	2050 Usage (acre-feet/year)	2060 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2006 Usage (acre-feet/year)	2006 Usage (acre-feet/year)
Collin	City of Garland	Ray Olinger	1,581	1,260	1,473	1,733	2,050	2,436	771	715	602	740	594	782		0	525	531	1,709	531
	Luminant Generation Company LLC	Collin																		
Dallas	City of Garland	CE Newman	12,264	10,842	11,918	13,230	14,829	16,778	3,367	4,290	3,791	5,075	4,643	6,178		1,648	1,443	1,598	12,858	1,675 (TCEQ data used for all plants except Newman where no data was present. BEG estimates where used for Newman).
	Exelon Generation Co LLC	Mountain Creek																		
	Luminant Generation Company LLC	Lake Hubbard																		
	Luminant Generation Company LLC	North Lake																		
	Rock-Tenn	Rock-Tenn Dallas Mill																		
	State Farm Mutual Auto Insurance Co	State Farm Insurance Medical Center																		
	University of Texas at Dallas	UTD																		
	Exelon Power	Mountain Creek																		
	?	Parkdale																		
Denton	City of Denton	Ray Roberts	524	418	489	575	680	808	348	318	254	281	182	234	644	0	639	395	567	644
	City of Garland	Lewisville																		
	City of Garland	Spencer																		
	WM Renewable Energy LLC	DFW Gas Recovery																		
Ellis	ANP Operations Co	Midlothian Energy Facility	14,237	20,379	23,825	28,027	33,148	39,391	981	698	1,450	3,741	5,754	7,878	706	0	0	975	8,840	706
	Ennis Tracetebel Power Co LLP	Ennis Tracetebel Power Co LLP																		
	?	Waxahachie																		
Fannin	Valley NG Power Company LLC (Luminant)	Valley	5,152	4,748	5,184	5,717	6,366	7,157	1,261	1,169	1,019	1,334	1,182	1,569		281	361	325	5,346	281
	LS Power	LS Power																		
Fannin/ Grayson	Merchant Power Plant	-																		
Freestone	Big Brown Power Company LLC (Luminant)	Big Brown	18,210	20,524	23,999	28,234	33,398	39,692	9,323	7,636	14,270	18,468	24,429	26,397		9,936	9,936	10,168	16,128	12,173 (TCEQ data used for all plants except Freestone where no data was present. BEG estimates where used for Freestone).
	Calpine - Freestone Power Generation LP	Calpine																		
	Luminant	Big Brown Update																		
Grayson	City of Whitesboro	Whitesboro	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
	USCE - Tulsa District	Denison																		
	Panda Energy	Sherman																		
Henderson	Luminant Generation Company LLC	Trinidad	2,387	2,308	2,376	2,458	2,559	2,681	460	427	342	383	253	328		57	25	117	2,418	57
	Luminant Generation Company LLC	Forest Grove																		
Jack	Brazos Electric Power Coop Inc	Jack Energy Facility	0	3,674	4,296	5,053	5,977	7,102	1,502	1,068	1,043	1,611	1,752	2,357		0	0	2,162	0	2,162
	Gamesa Energy	Barton Chapel Wind 1																		
Kaufman	FPLE Forney LLP	Forney Energy Center	8,979	17,798	20,808	24,478	28,950	34,403	4,186	2,977	2,907	4,490	4,883	6,570	8,018	0	0	5,814	5,387	8,018
Navarro	Ellis Power	Ellis Power	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
	Babcock and Brown (Navarro Energy)	Babcock and Brown (Navarro Energy)																		
	?	Corsicana																		
Parker	Brazos Electric Power Coop Inc	North Texas	30	4,617	5,397	6,349	7,509	8,923	24	22	28	56	75	102		0	9	3	32	0
	Weatherford Mun Utility System	Weatherford																		
Tarrant	City of Fort Worth	Village Creek WWTP	4,158	3,419	4,168	5,081	6,194	7,550	2,640	2,448	2,082	2,614	2,167	2,861		1,300	3,054	1,053	4,456	1,300
	Exelon Generation Co LLC	Handley																		
	Luminant Generation Company LLC	Eagle Mountain																		
	?	North Main																		
Wise	Devon Gas Service	Bridgeport Gas Processing Plant	3,949	5,653	6,609	7,774	9,195	10,927	1,751	1,245	1,216	1,878	2,042	2,748		2,100	0	2,205	2,369	2,100
	Wise County Power Co LP	Wise County Power LP																		
TOTAL			**71,471**	**95,640**	**110,542**	**128,709**	**150,855**	**177,848**	**26,614**	**23,013**	**29,004**	**40,671**	**47,956**	**58,004**	**9,368**	**15,322**	**15,992**	**25,346**	**60,111**	**29,647**

Region C Water Planning Group
Mining Demand Projections

PROJECT: 0312-041-01

DATE: August 4, 2009

PREPARED FOR: Region C Water Planning Group

PREPARED BY: Alan Plummer Associates, Inc.

Mining Projections Background

The *2006 Region C Plan* (hereafter referred to as the 2006 Plan) included projections for municipal demands, as well as non-municipal demands such as irrigation, livestock, manufacturing, mining, and steam-electric power. As part of the 2011 update to the Region C Water Plan, mining demands were reviewed to determine if changes should be made to the future projections. In the 2006 Plan, projections of the mining demand were based on the analysis of historical trends and Texas Water Development Board (TWDB) draft projections. The TWDB projections included water use associated with secondary recovery processes for oil and gas and non-fuel mining operations. However, the TWDB projections did not include water consumption associated with the recent surge in Barnett Shale exploration activities in Region C. Barnett Shale activities occur primarily in the following Region C counties: Cooke, Dallas, Denton, Ellis, Jack, Parker, Tarrant, and Wise. A summary of the mining consumption projections from the 2006 Plan is included in Table 1. The purpose of this memorandum is to examine additional mining water consumption associated with Barnett Shale activities for the purpose of updating mining projections for the 2011 Region C Plan.

Table 1. 2006 Region C Mining Water Consumption Projections

	Year						
County	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Cooke County	289	321	334	341	348	355	361
Dallas County	2,910	2,910	2,910	2,910	2,910	2,910	2,910
Denton County	139	341	341	341	341	341	341
Ellis County	90	90	90	90	90	90	90
Jack County	433	433	433	433	433	433	433
Parker County	75	98	112	122	132	142	150
Tarrant County	342	433	484	519	554	589	616
Wise County	17,441	23,627	27,824	30,530	33,303	36,168	38,866
All other Region C counties	3,760	1,987	2,033	2,064	2,095	2,127	2,153
Region C Total	**25,479**	**30,240**	**34,561**	**37,350**	**40,206**	**43,155**	**45,920**

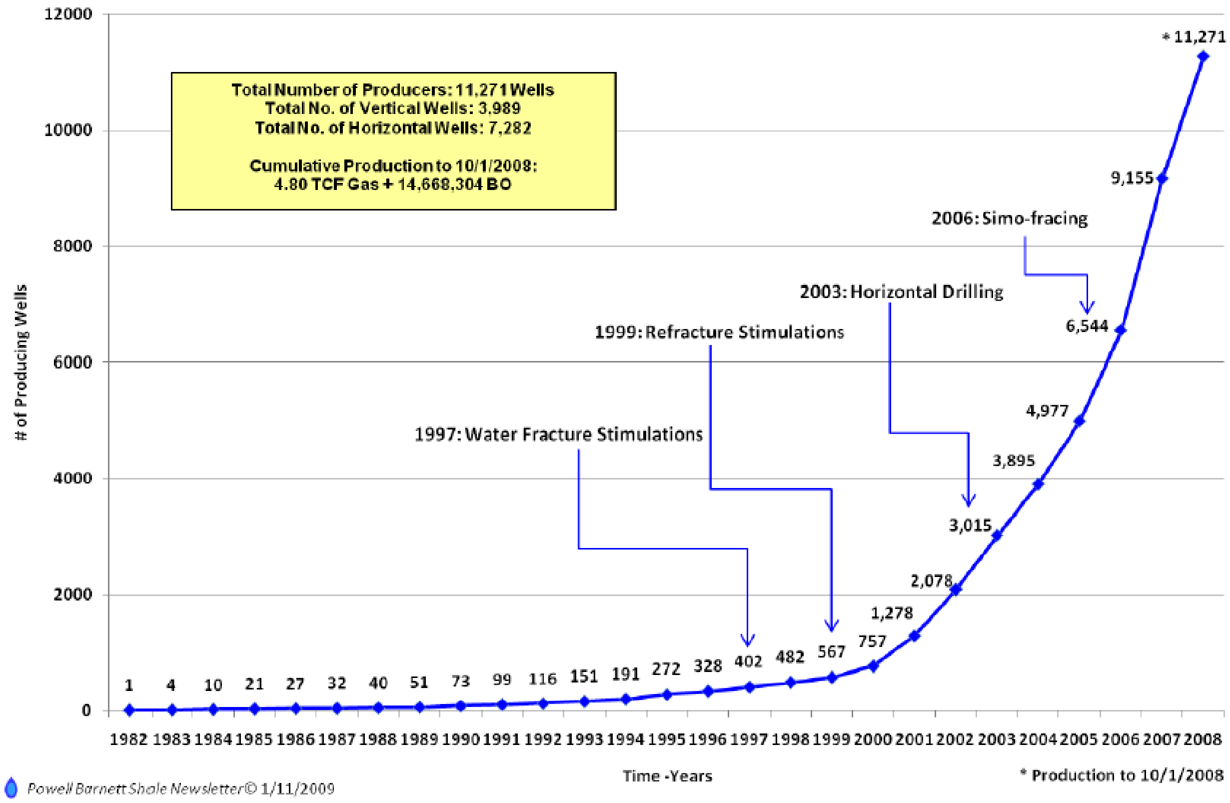
Barnett Shale Water Use

The water consumption associated with gas drilling operations while short in duration, is significant, with typical vertical completions consuming approximately 1.2 million gallons, and typical horizontal well completions consuming 3.0 to 3.5 million gallons of fresh water.[1] Since the 2006 planning cycle, the number of producing wells in the Barnett Shale has doubled in Region C from 6,544 to 11,271 (see Figure 1)[2]. Several reports have developed or cited both water consumption estimates and short-term projections. A summary of available reports and the information they include is located in Table 2.

[1] TWDB, Northern Trinity/Woodbine GAM Assessment of Groundwater Use in the Northern Trinity Aquifer Due To Urban Growth and Barnett Shale Development, 2007.

[2] The Barnett Shale News, accessed online at http://barnettshalenews.com/documents/Powell%20Barnett%20Shale%20Newsletter%20January%2012%202009.pdf

Figure 1. Number of Producing Barnett Shale Wells as of October 1, 2008*



*Graph represents the Fort Worth Basin, which includes counties outside of Region C. The Fort Worth Basin consists of Johnson, Tarrant, Ellis, Dallas, Denton, Wise, Parker, Hill, Somervell, Hood, Jack, Erath, Palo Pinto, Eastland, Montague, Cookie, Clay, Hamilton, Bosque, Stephens, Comanche. The six highest volume of production counties in the Fort Worth Basin are Johnson, Tarrant, Ellis, Dallas, Denton, and Wise counties.

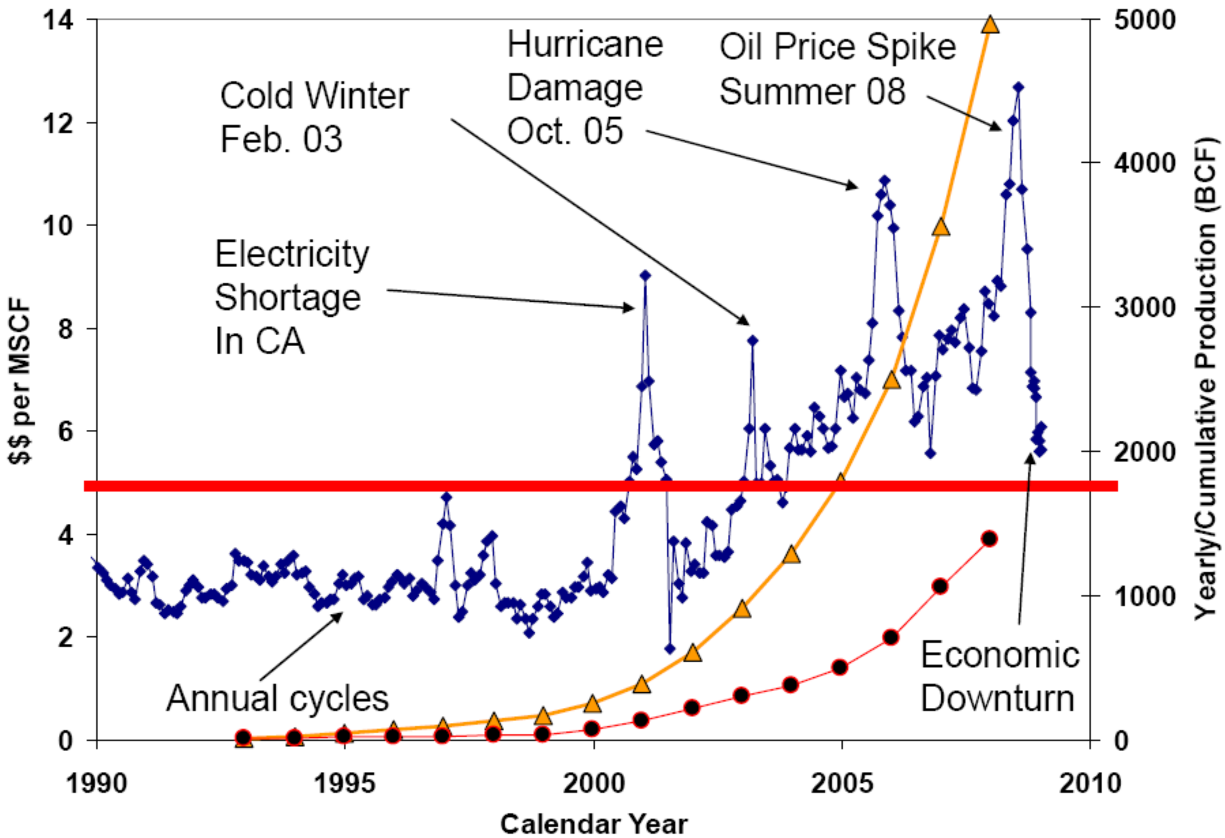
Table 2. Reference Table

Reference	Publish Date	Producing Well Count	Historical Consumption	Projections
Powell Barnett Shale Newsletter	monthly	X		
Fort Worth Basin/Barnett Shale Natural Gas Play: An Assessment of Present and Projected Fresh Water Use	April 2007	X	X	X
Northern Trinity/Woodbine GAM Assessment of Groundwater Use in the Northern Trinity Aquifer Due To Urban Growth and Barnett Shale Development	January 2007	X	X	X

In 2007, the TWDB, in conjunction with a research project team consisting of R.W. Harden and Associates, Inc., Freese and Nichols, Inc., and the University of Texas at Austin Bureau of Economic Geology, developed the "Trinity/Woodbine GAM Assessment of Groundwater Use in the Northern Trinity Aquifer Due To Urban Growth and Barnett Shale Development" (hereafter referred to as the 2007 Report). The objective and purpose of this research project was to (1) estimate current and future pumping of groundwater due to urban growth, (2) estimate current and future pumping of groundwater for fracture enhancement to improve gas well production in the Barnett Shale, and (3) simulate how this pumping may affect the Trinity and Woodbine aquifers. Although the study focused on groundwater use, short-term projections were developed for total water use in the Barnett Shale.

Water use projections for gas drilling are highly uncertain and are dependent on the price of gas. In addition, a large amount of statistical data is not available due to the short history of drilling in the Barnett shale. The uncertainty associated with gas prices lead to the development of high, medium, and low scenarios to account for different market conditions in the 2007 Report. Other important factors include geologic risk factors in the Barnett (maturity of the shale, thickness of the formation, presence of features limiting or hampering well completion), technological factors (horizontal vs. vertical wells, water recycling), operational factors (number of well completions that can be done in a year, proximity of a fresh-water source), and regulatory factors. The high scenario cumulates most of the high-end water use of the previous parameters, whereas the low scenario uses the low values of their range. At the time the report was published, gas prices were relatively high (see Figure 2). Since the publish date of the 2007 Report, gas prices have dropped significantly. Figure 3 provides both the high, medium, and low scenarios as well as surveyed historical water usage for 2005, 2006, and 2007. For these three years, the actual water usage fe1l between the medium and high scenarios and were consistent with the projection scenarios.

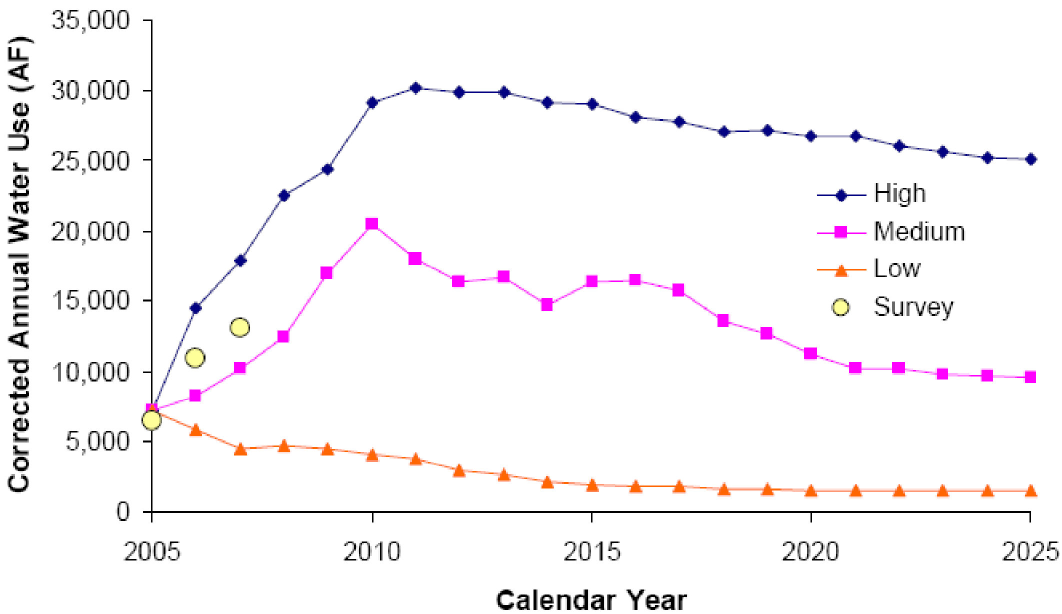
Figure 2. Natural Gas Prices



[3] Notes: The price of natural gas ($ per thousand cubic feet) and Barnett Shale gas annual (lower smooth line) and cumulative (upper smooth line) production (in billions of cubic feet) since 1990 (EIA and RRC websites). The horizontal line at $5 represents the usually accepted lower limit. Events explaining natural gas price ups and downs are displayed in the plot.

[3] Jean-Philippe Nicot, Assessment of Industry Water-Use in the Barnett Shale Gas Play (Fort Worth Basin), 2009.

Figure 3. 2007 Short Term Projects and Surveyed Water Use



[4] Notes: Water use projections for the high, medium, and low scenario in acre-feet (1 AF = 325,851 gallons) (A) Projected frac total water use (including surface water); and (B) projected frac ground water use. Survey points were obtained from Galusky (2007). The survey points are consistent with initial projection scenarios.

[4] Jean-Philippe Nicot, Assessment of Industry Water-Use in the Barnett Shale Gas Play (Fort Worth Basin), 2009.

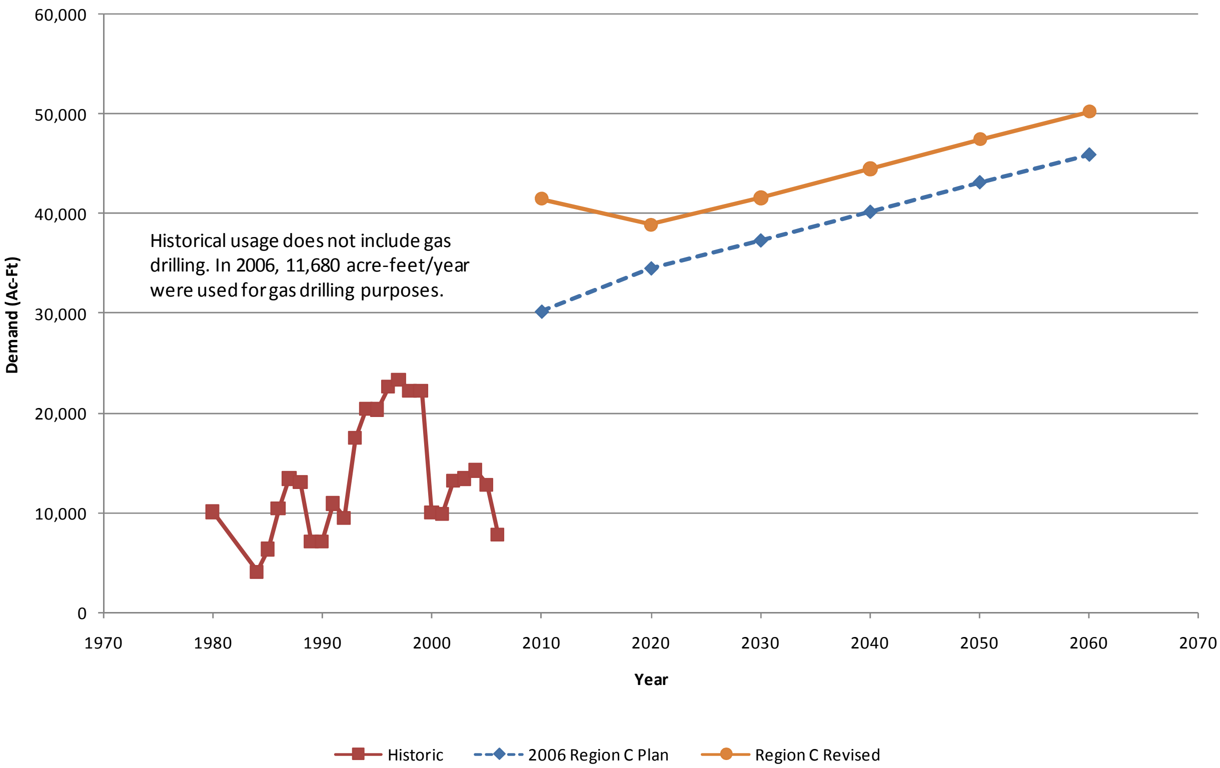
Proposed Projections

The 2007 Report developed short term projections through the year 2025 for Barnett Shale Water Use. An activity weighting curve was developed and included an initial ramp, a peak, a decrease, and a long tail. The tail extends for 50 years after the initial drilling year until total extraction of the resource has occurred. The tail period starts in Year 11, and the first 10 years account for 27% of the maximum number of completions/maximum water use of the scenario considered. During the tail period, each year accounts for 1.5% of the maximum number of completions/maximum water use of the scenario considered. For Region C counties with Barnett Shale exploration, the 2007 Report's medium projection was used through 2025 because of consistency with surveyed usage in the area. The high projection was not chosen due to the recent decline in production. After 2030, the tail period assumptions were used to extend the projections through the year 2060. It should be noted that the BEG was awarded a study by the TWDB to analyze mining water use throughout the state and develop demand projections for the 50-year planning horizon. These projections should be utilized in subsequent planning cycles.

Table 7. Proposed 2011 Region C Projections (using High Scenario)

	2011 Region C Proposed					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	341	341	341	341	341	341
Cooke	361	484	421	428	435	441
Dallas	2,980	3,040	3,030	3,030	3,030	3,030
Denton	1,571	751	751	751	751	751
Ellis	210	140	140	140	140	140
Fannin	12	12	12	12	12	12
Freestone	116	126	132	138	144	149
Grayson	1,052	1,050	1,049	1,048	1,047	1,046
Henderson	265	302	327	352	378	399
Jack	993	983	973	973	973	973
Kaufman	79	80	81	82	83	84
Navarro	89	89	89	89	89	89
Parker	5,868	1,702	1,692	1,702	1,712	1,720
Rockwall	33	33	33	33	33	33
Tarrant	1,073	904	939	974	1,009	1,036
Wise	26,477	28,924	31,620	34,393	37,258	39,956
Region C Total	41,520	38,961	41,630	44,486	47,435	50,200
2006 Plan Region C Total	30,240	34,561	37,350	40,206	43,155	45,920

Figure 2. Comparison of Region C Steam Electric Water Use Projections



Attachment A
Projection Comparisons
Including Proposed Region C 2011 Projections

Figure A-1. Region C Mining Demands

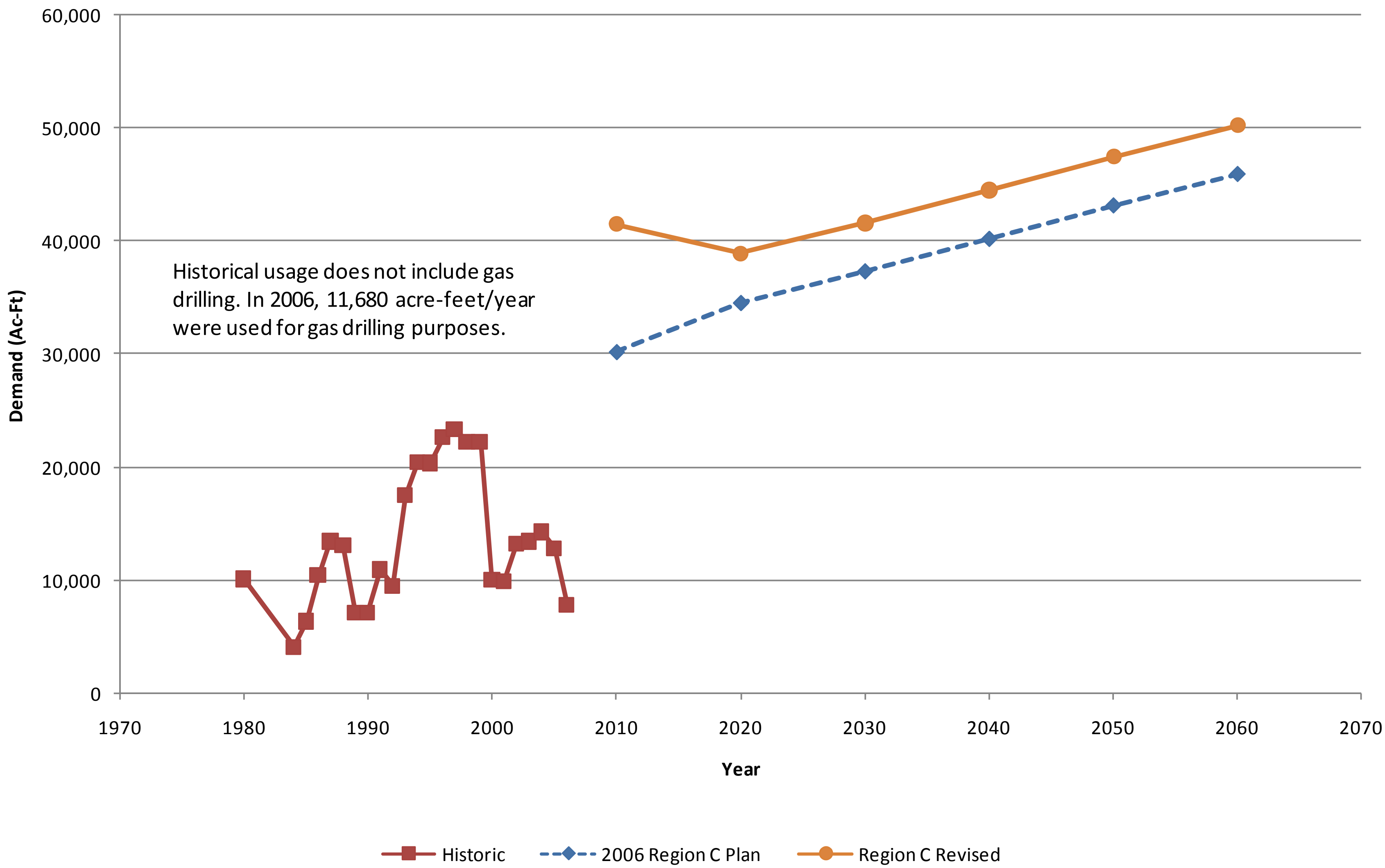


Figure A-2. Collin County Mining Demands

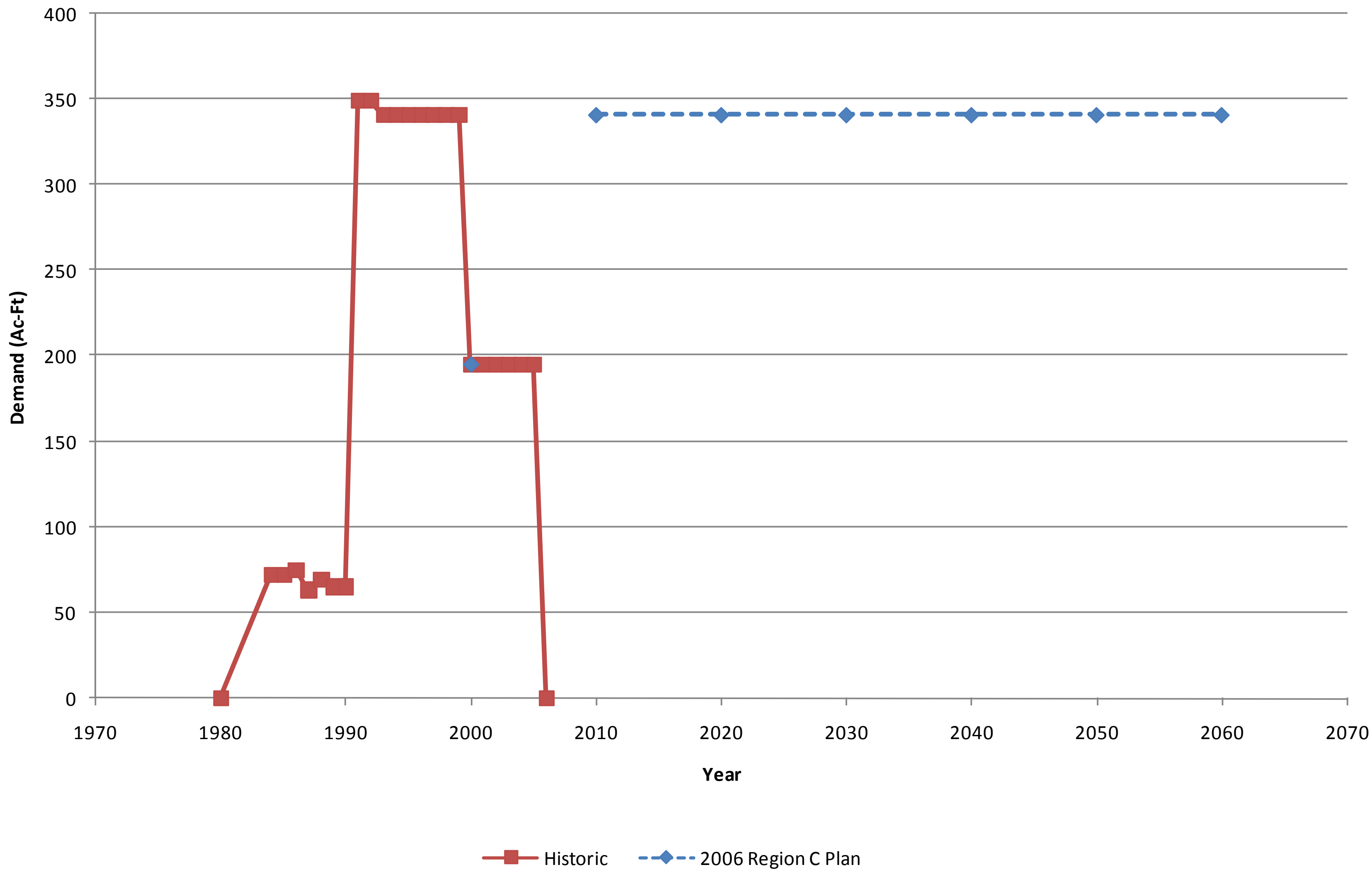


Figure A-3. Cooke County Mining Demands

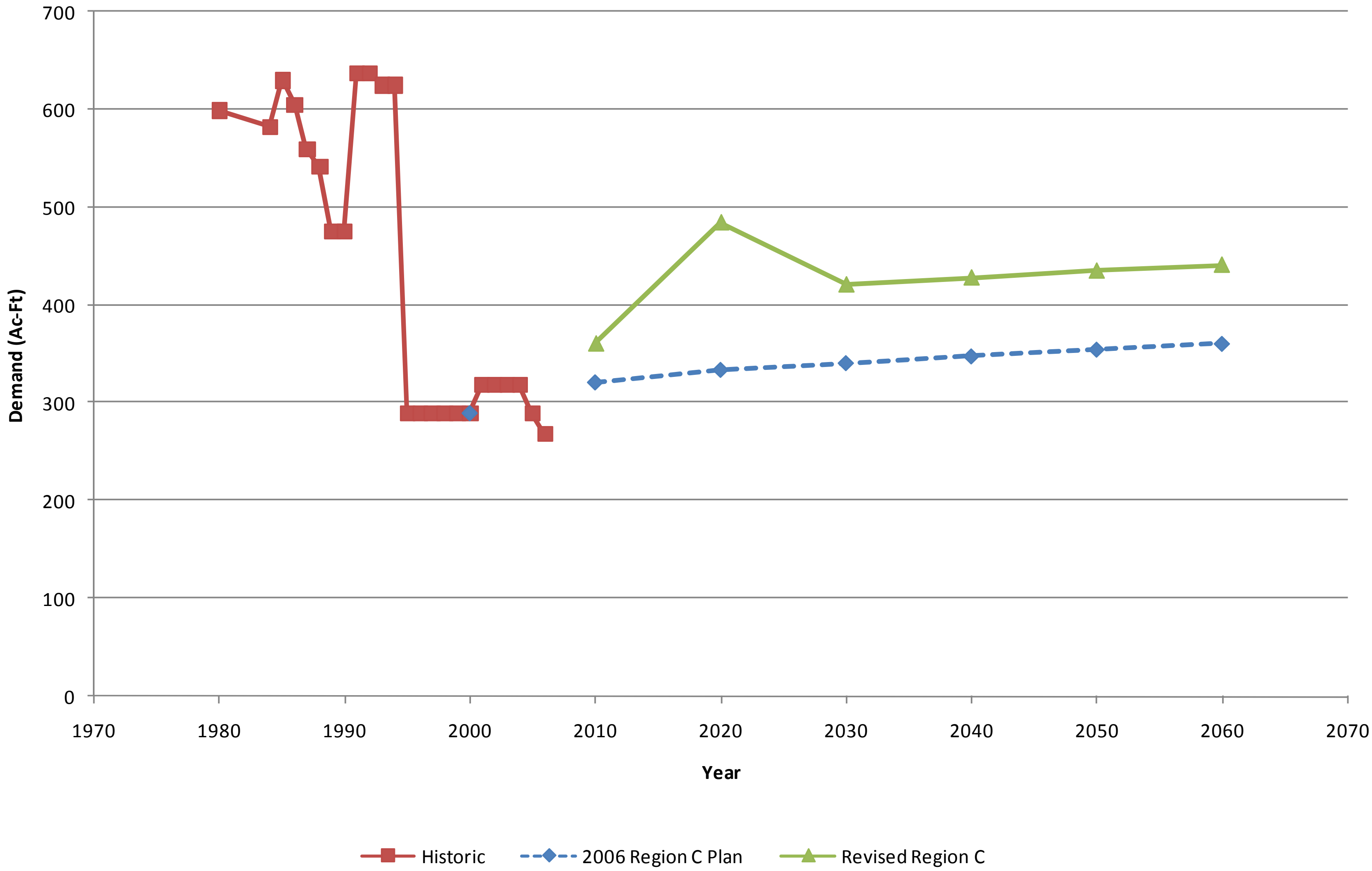


Figure A-4. Dallas County Mining Demands

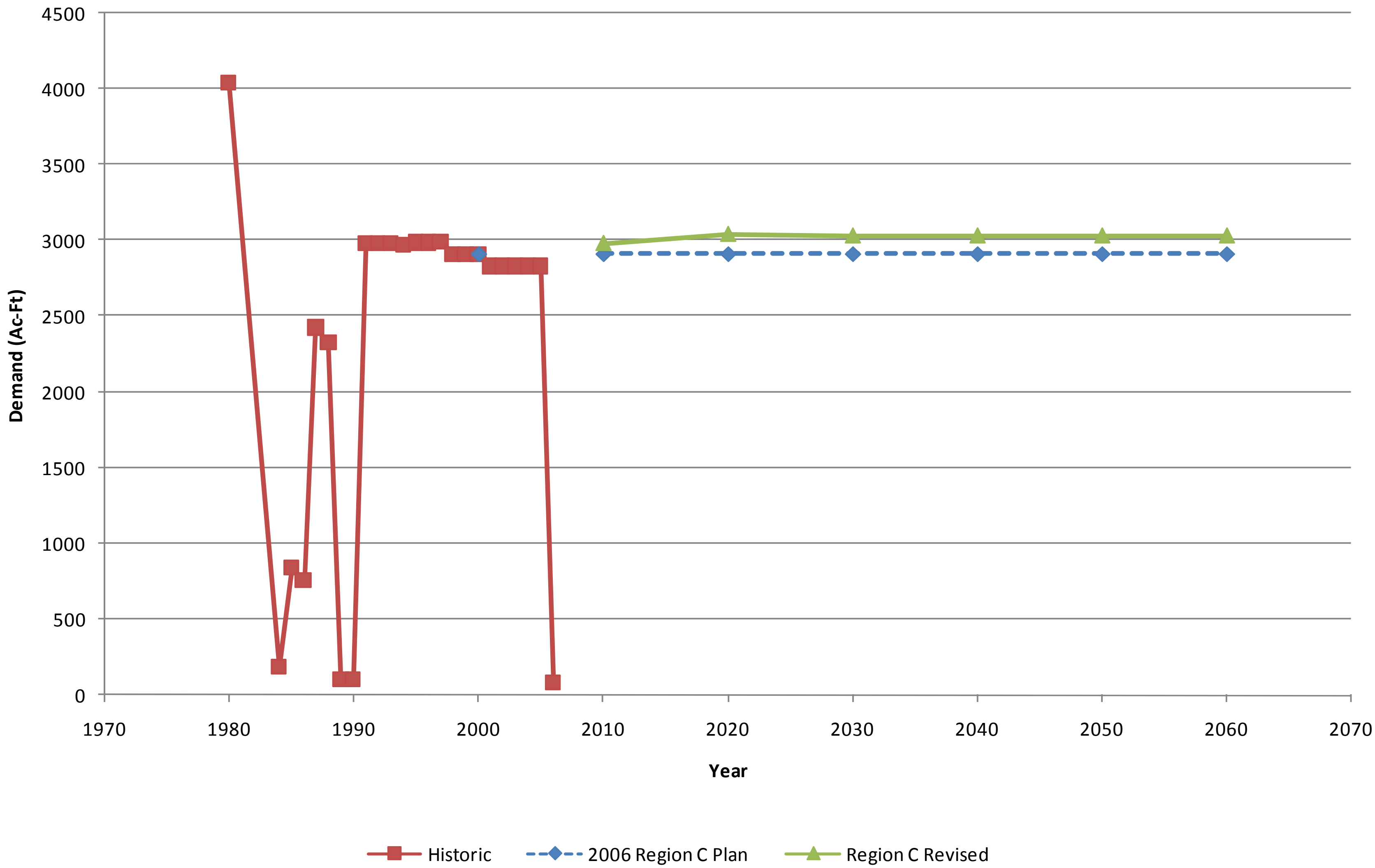


Figure A-5. Denton County Mining Demands

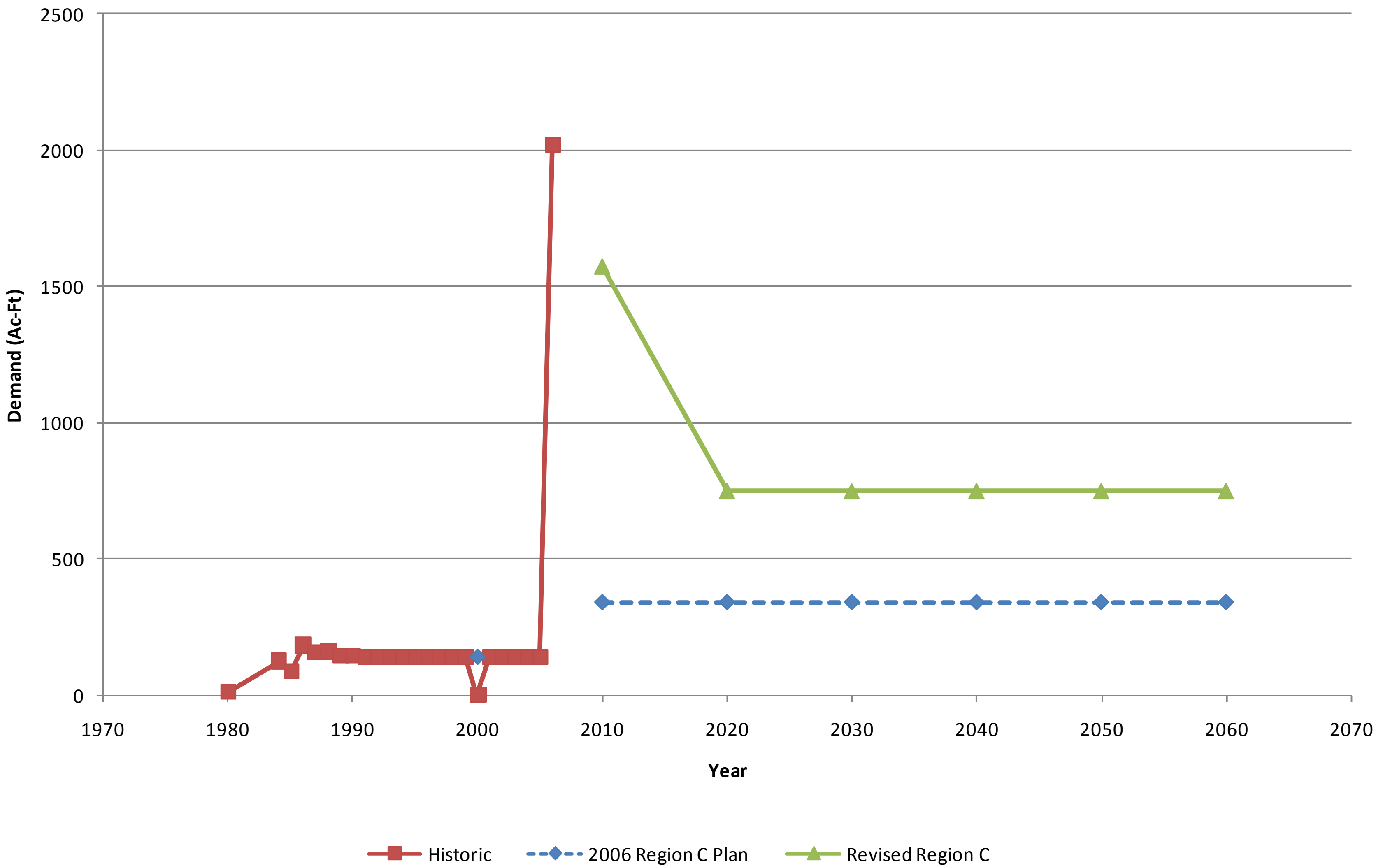


Figure A-6. Ellis County Mining Demands

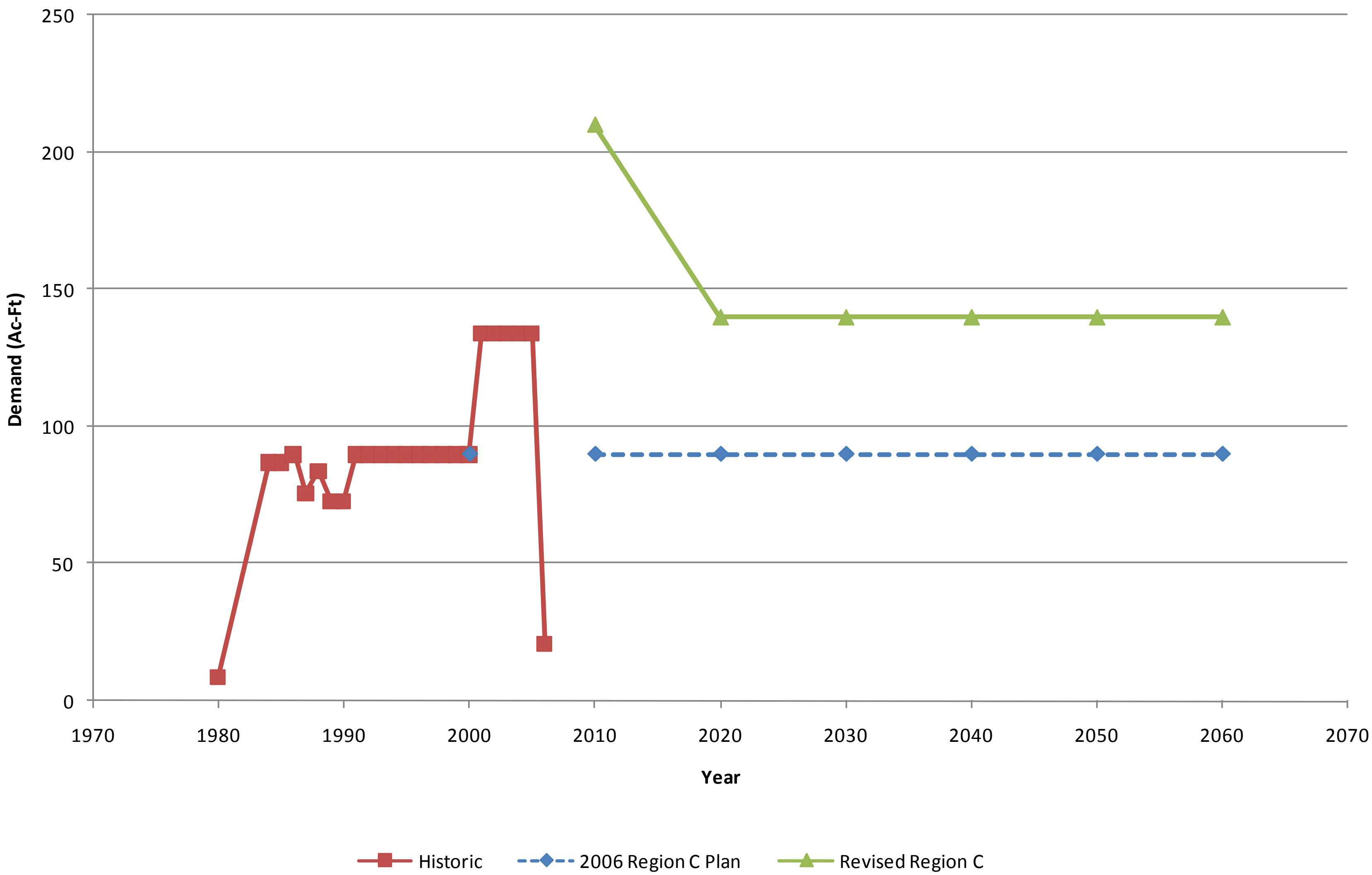


Figure A-7. Fannin County Mining Demands

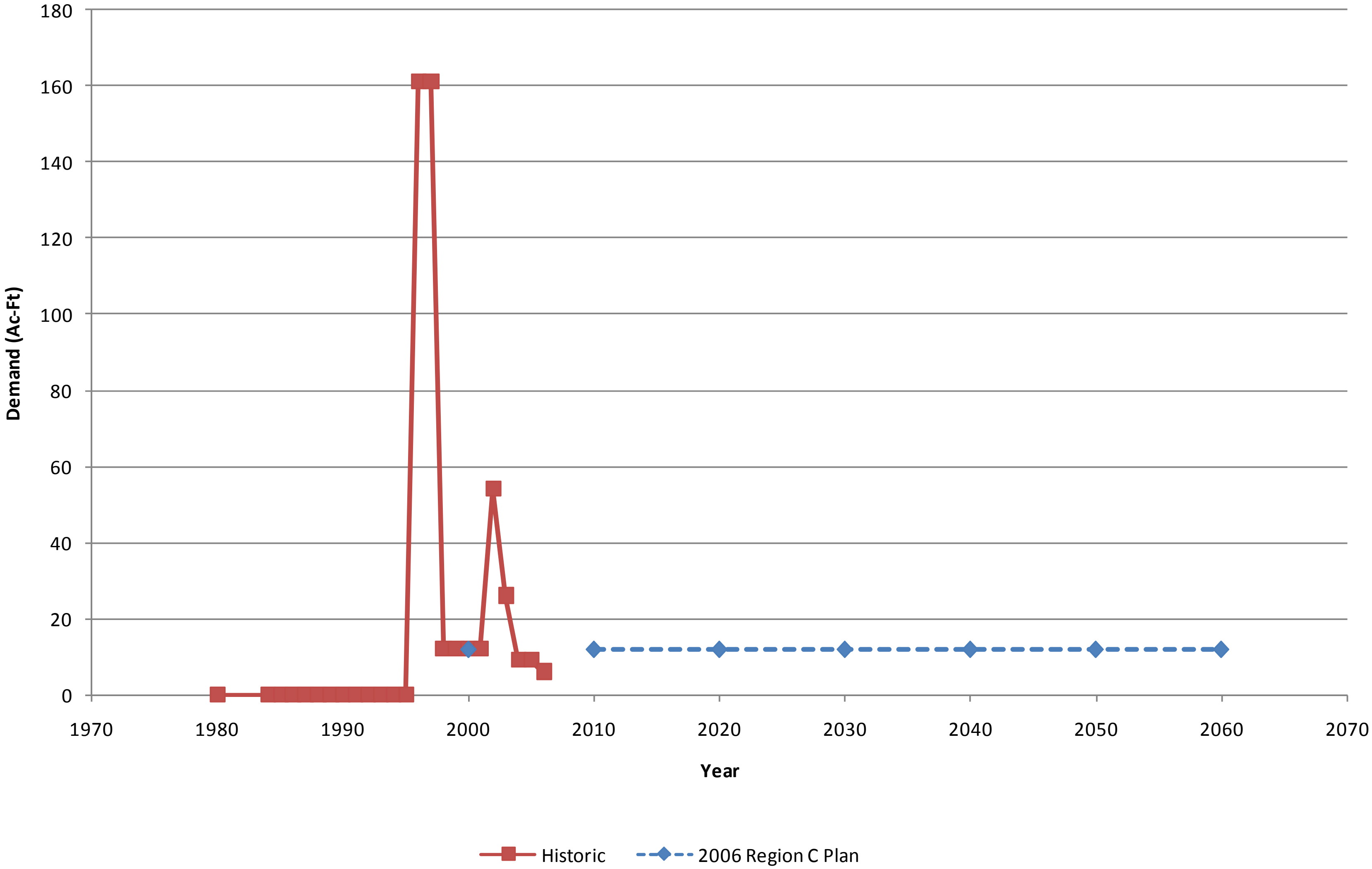


Figure A-8. Freestone County Mining Demands

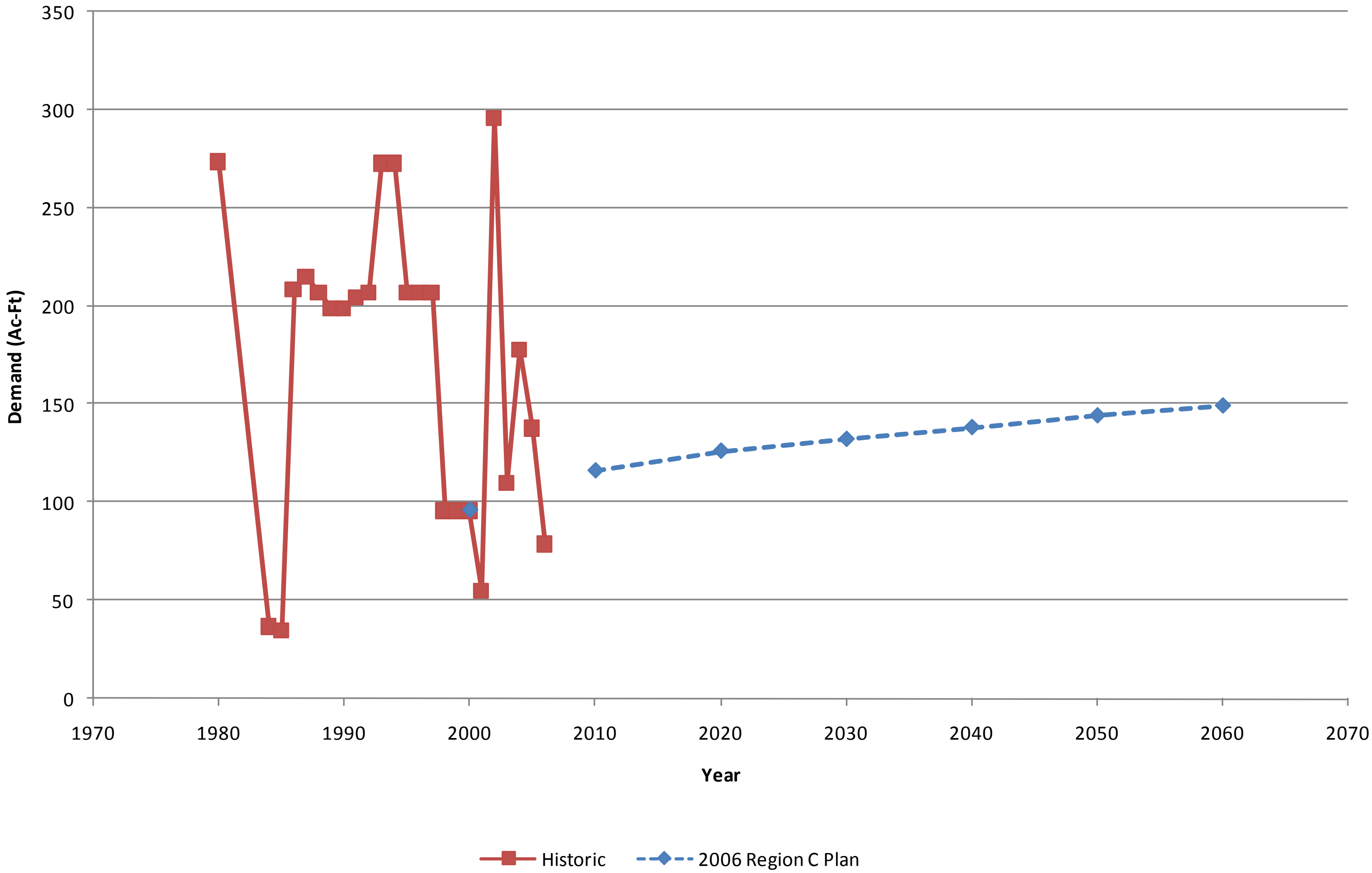


Figure A-9. Grayson County Mining Demands

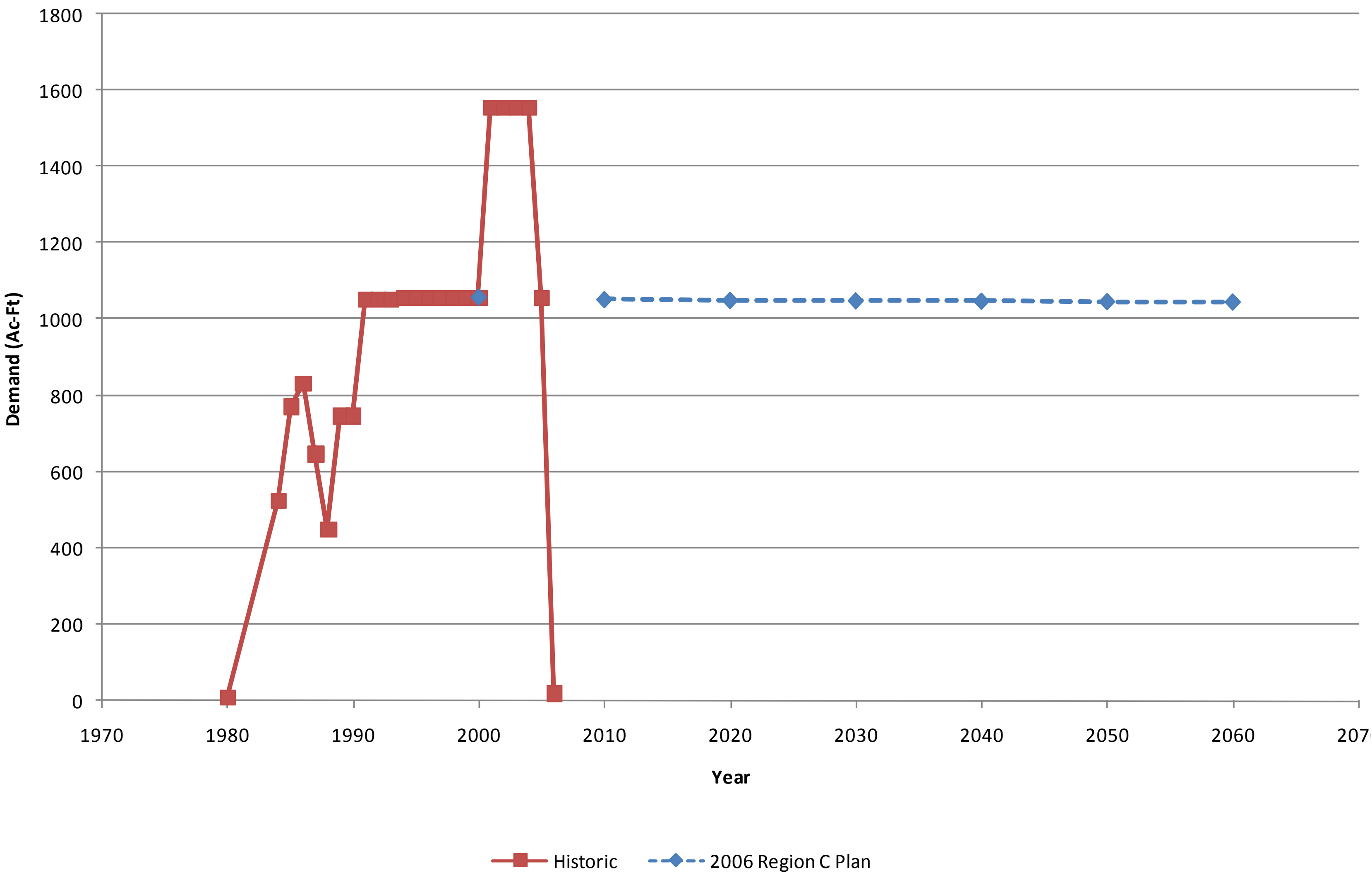


Figure A-10. Henderson County Mining Demands

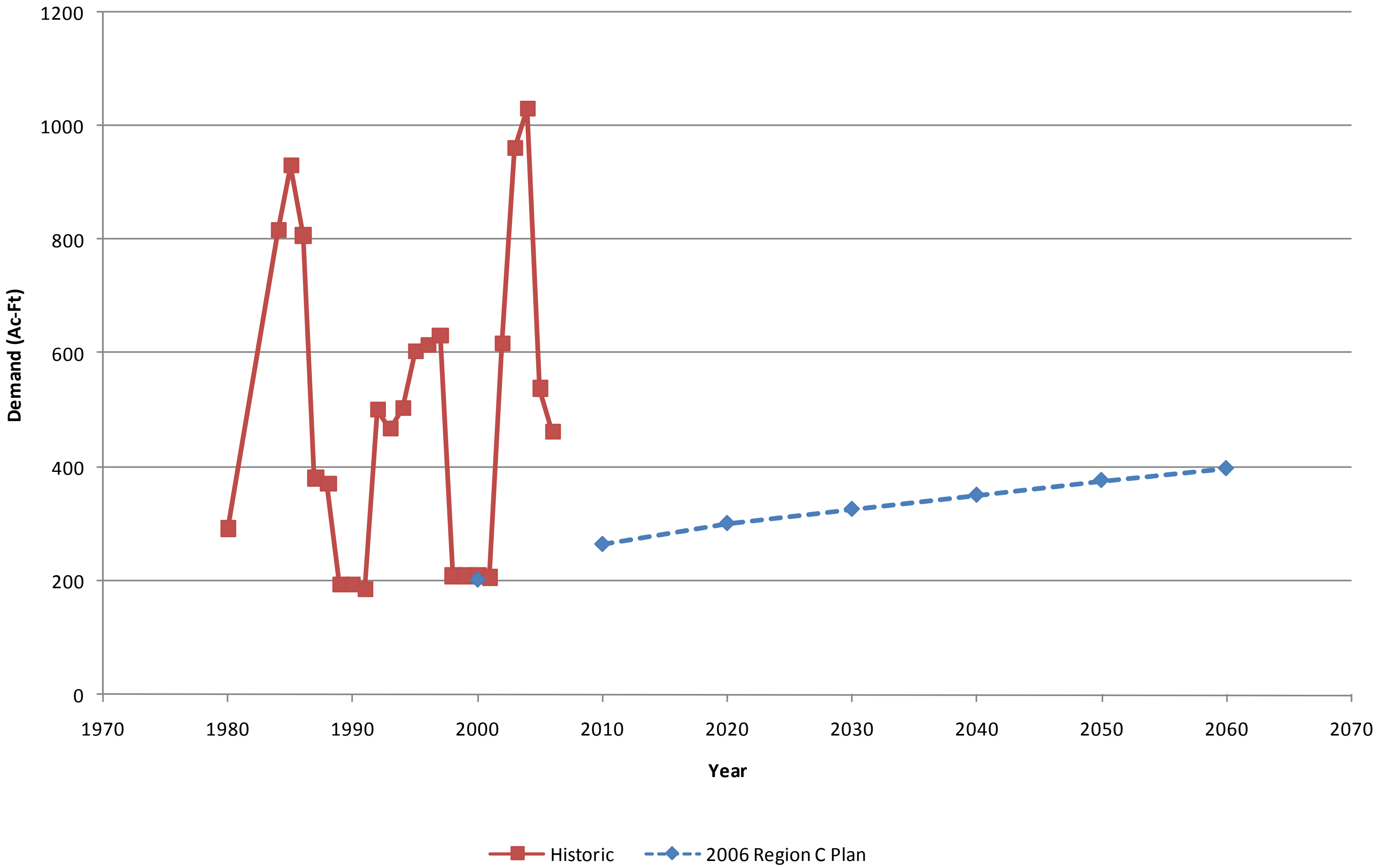


Figure A-11. Jack County Mining Demands

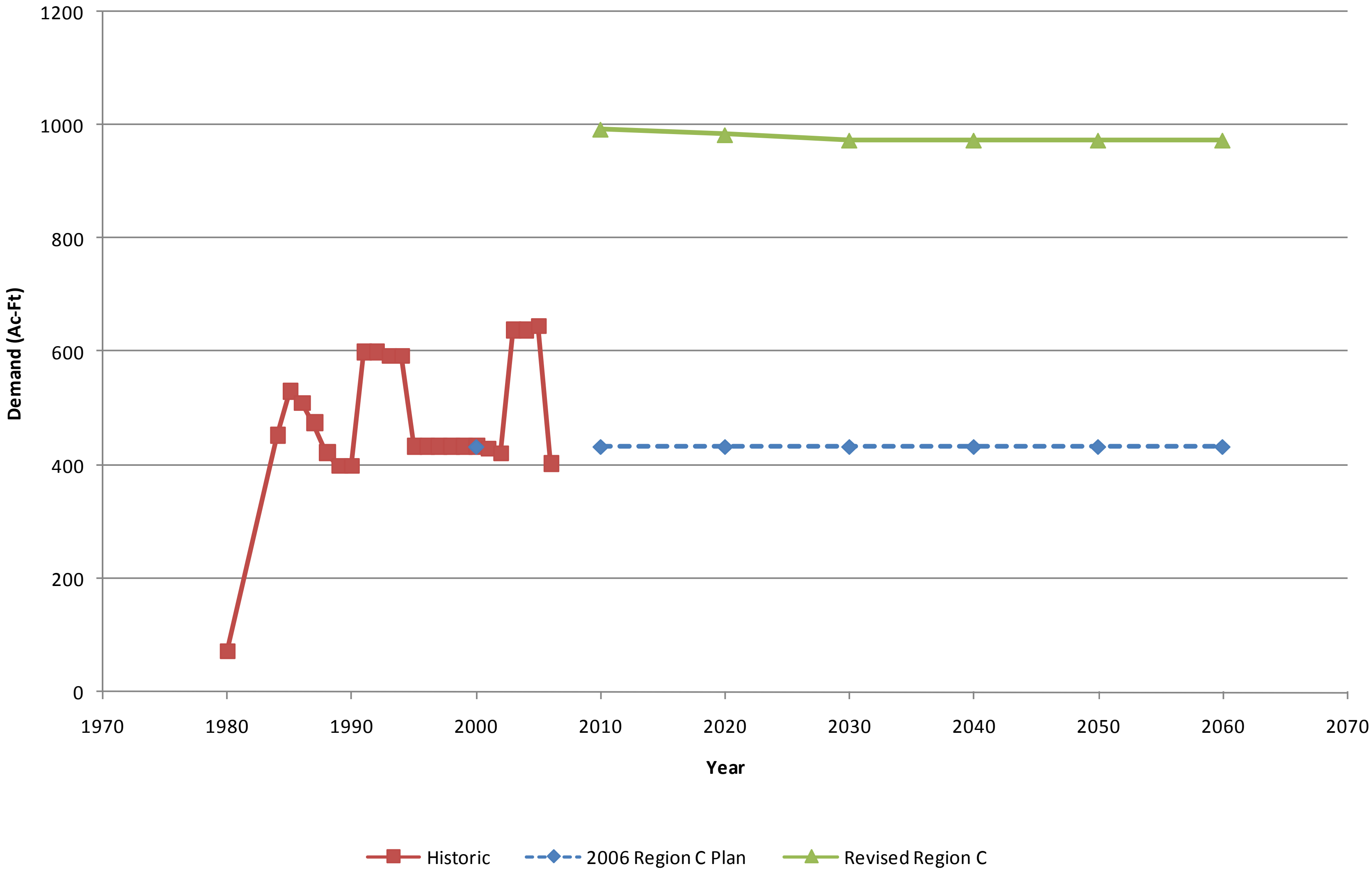


Figure A-12. Kaufman County Mining Demands

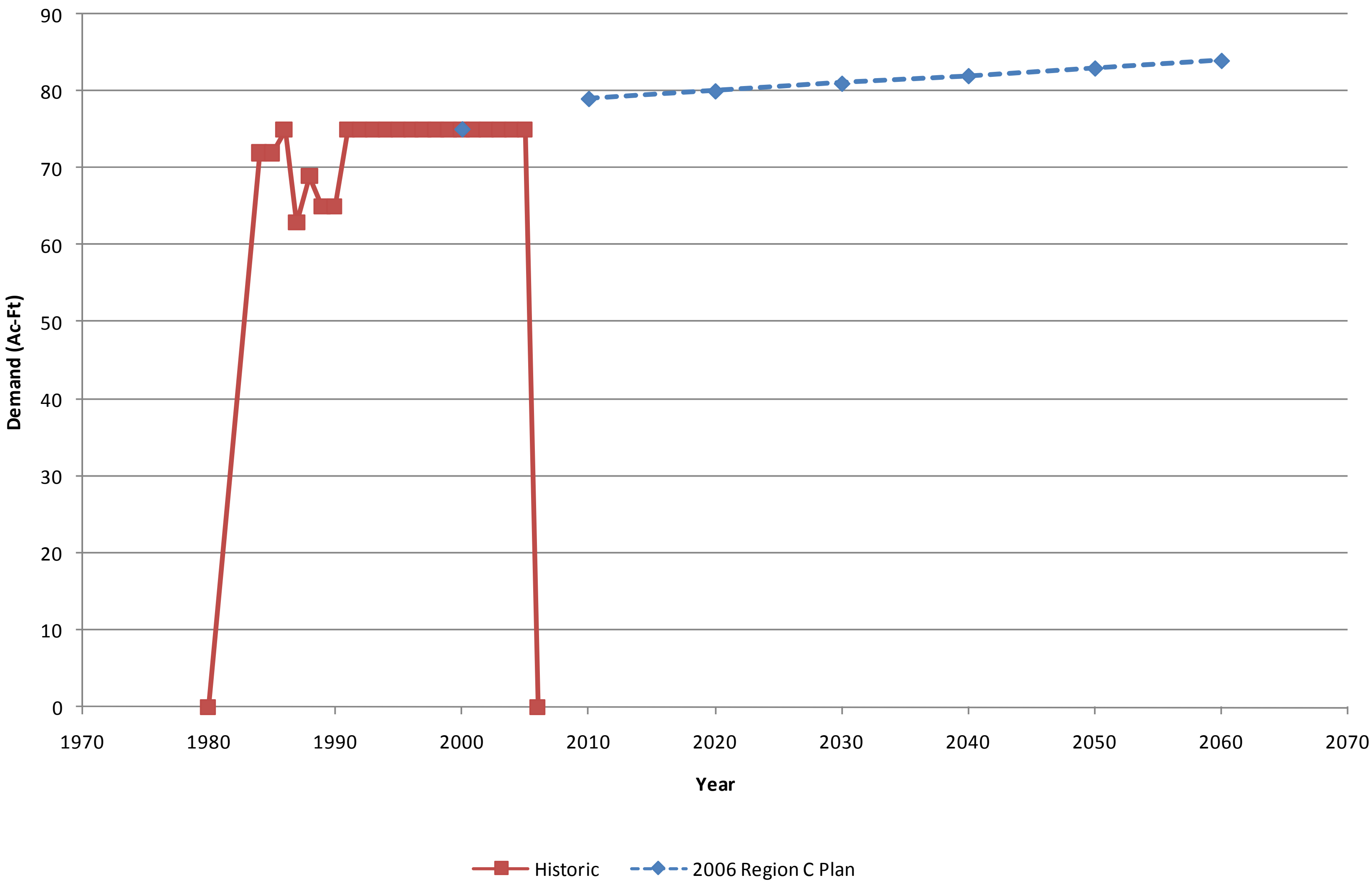


Figure A-13. Navarro County Mining Demands

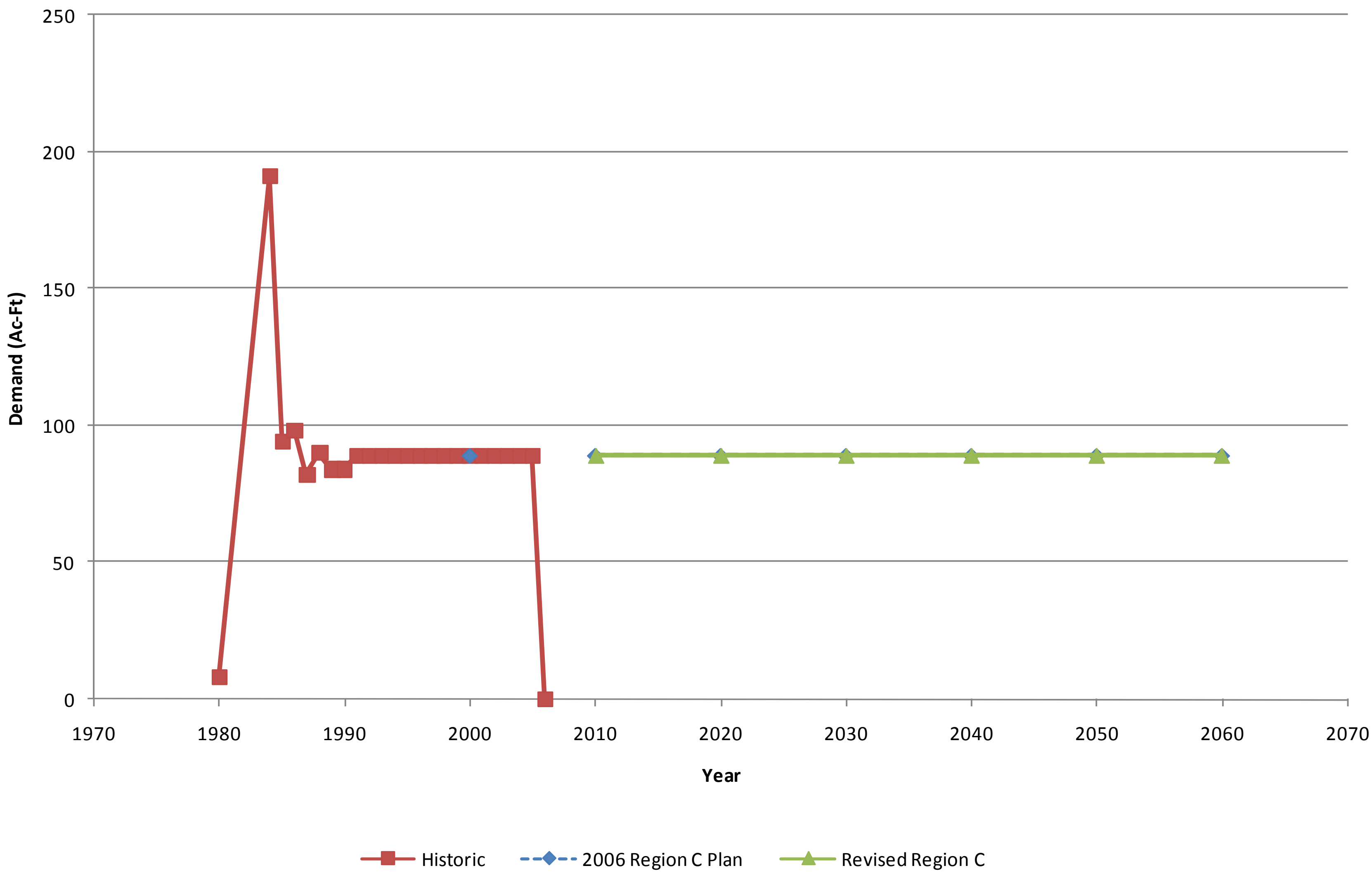


Figure A-14. Parker County Mining Demands

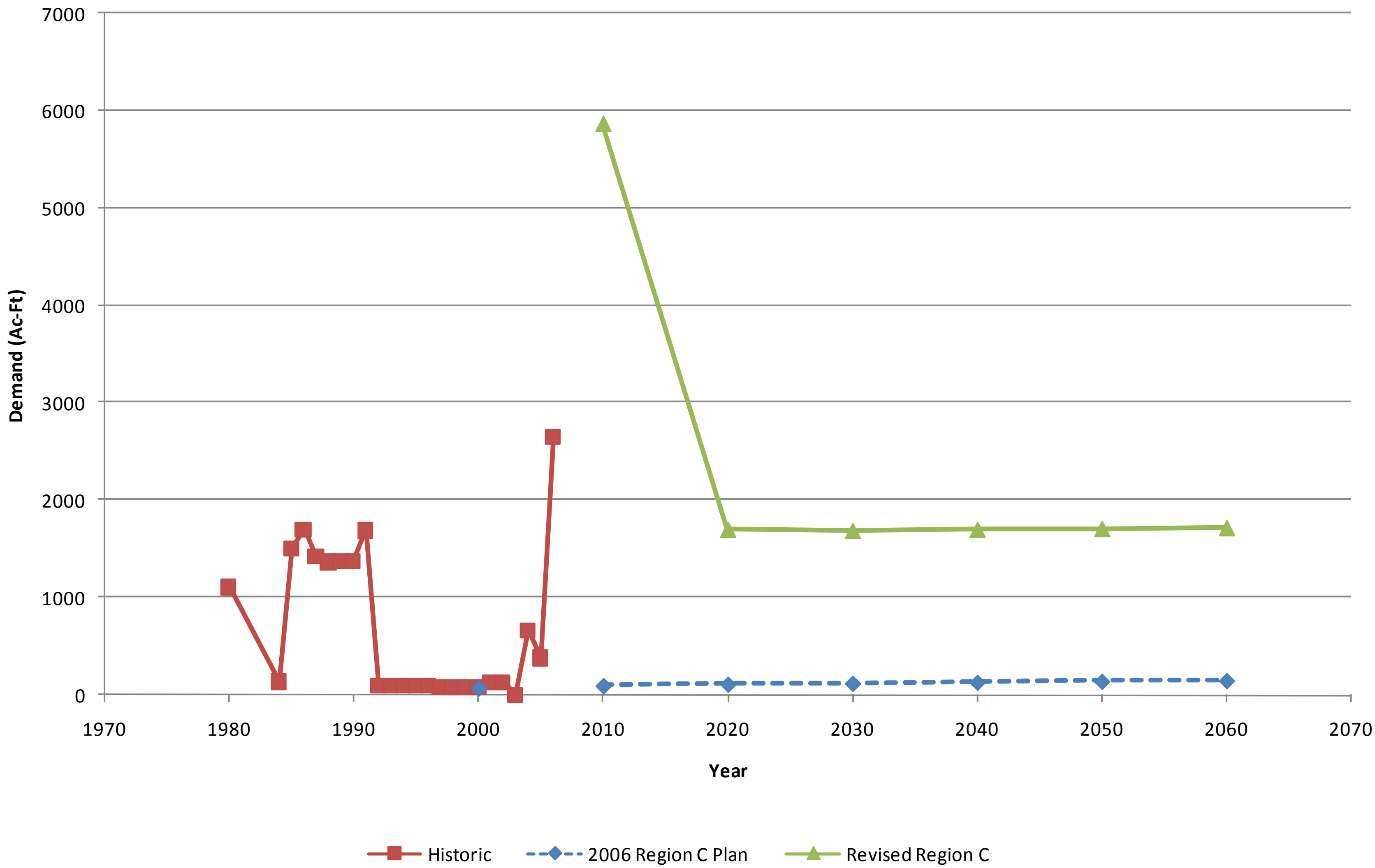


Figure A-15. Rockwall County Mining Demands

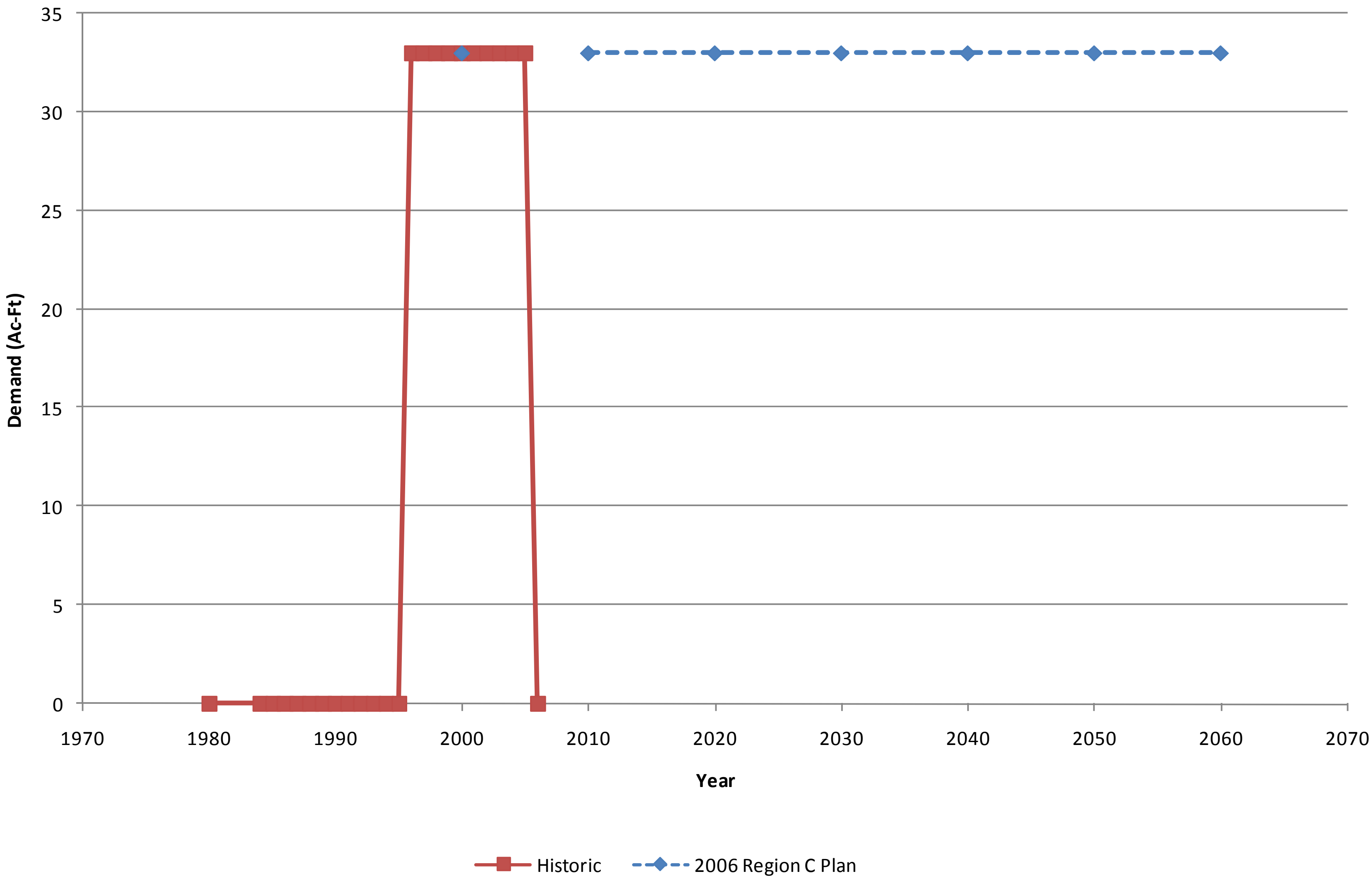


Figure A-16. Tarrant County Mining Demands

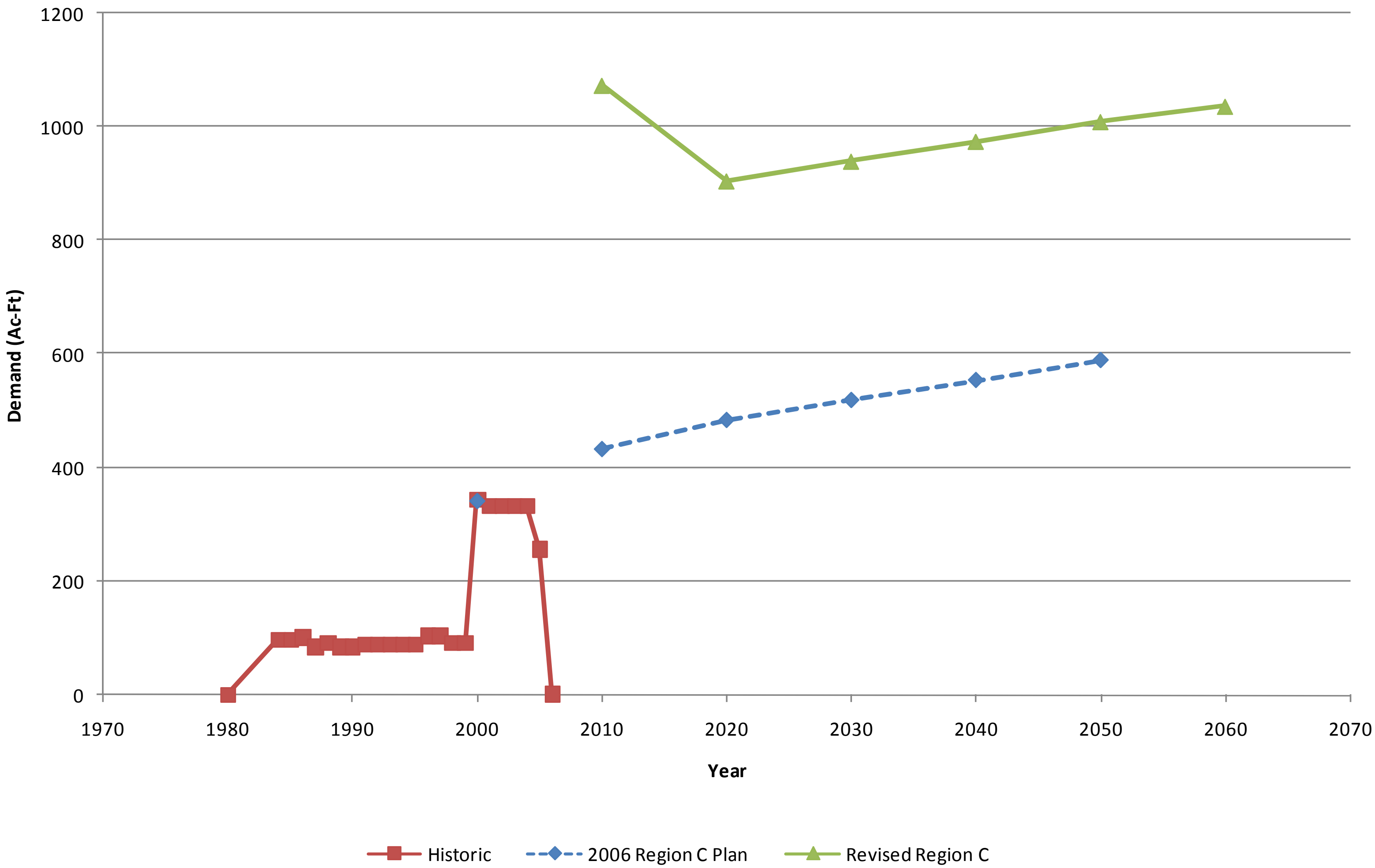
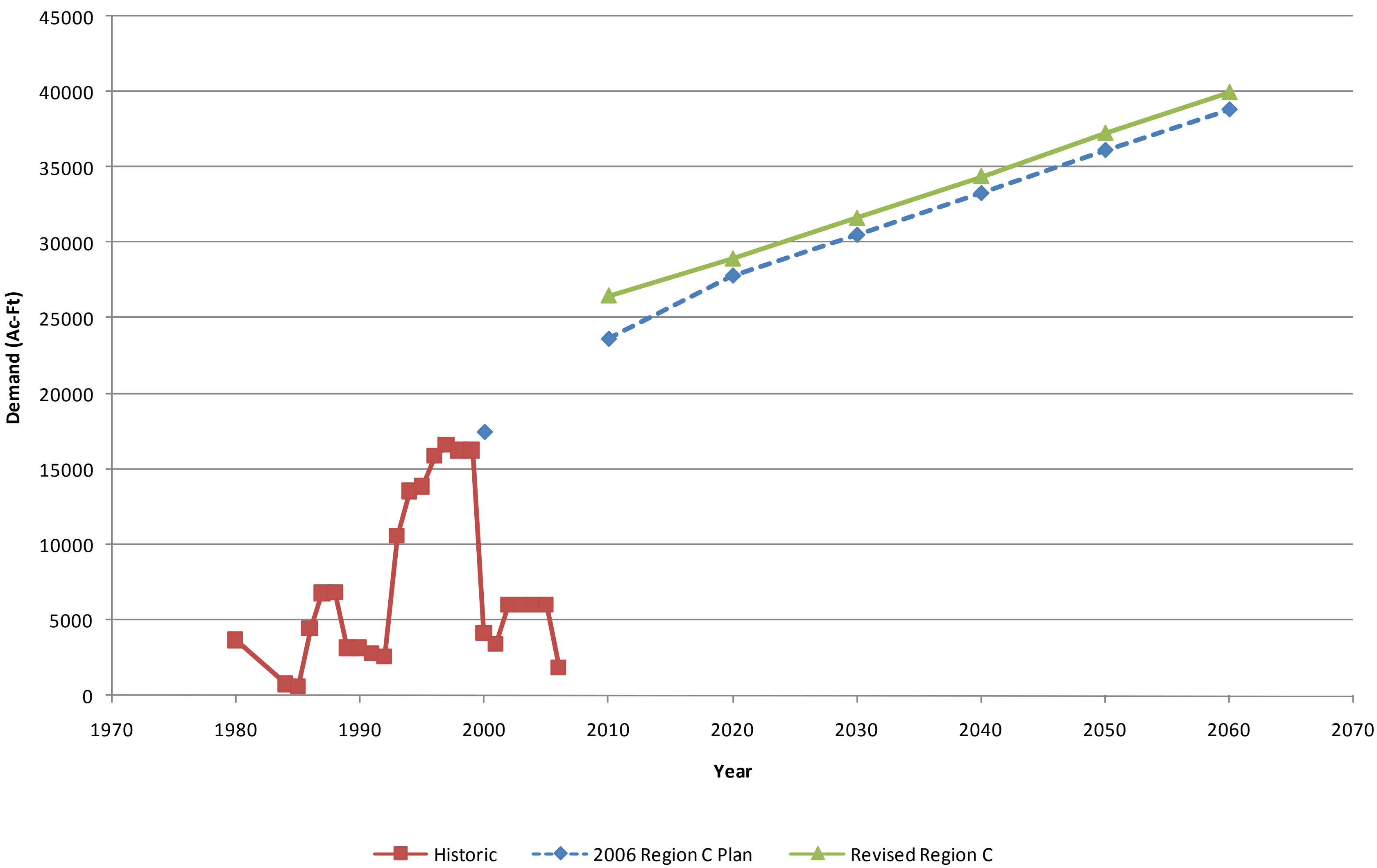


Figure A-17. Wise County Mining Demands



APPENDIX F

POPULATION PROJECTIONS

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
ALLEN	COLLIN	82,000	90,000	98,000	98,500	98,500	98,500		
ANNA	COLLIN	9,000	14,000	21,000	28,000	36,000	60,000		
BLUE RIDGE	COLLIN	2,000	4,000	7,000	11,000	16,000	18,000		
CADDO BASIN SUD	COLLIN	4,710	5,869	7,307	8,781	10,324	11,966	P	P
CELINA	COLLIN	5,000	22,675	48,000	85,000	130,000	150,000		P
COUNTY-OTHER	COLLIN	6,408	5,981	5,600	5,208	4,801	4,369		
CULLEOKA WSC	COLLIN	8,534	11,264	13,682	16,161	18,754	21,515		
DALLAS	COLLIN	56,316	62,938	66,867	69,199	70,582	72,600		P
DANVILLE WSC	COLLIN	4,570	6,315	7,860	9,444	11,101	12,865		
EAST FORK SUD	COLLIN	7,904	9,085	10,131	11,203	12,325	13,519		P
FAIRVIEW	COLLIN	9,300	10,800	13,600	18,000	18,000	18,000		
FARMERSVILLE	COLLIN	3,683	7,000	10,000	15,000	22,000	30,000		
FRISCO	COLLIN	71,330	107,300	125,951	152,721	171,862	171,862		P
GARLAND	COLLIN	0	0	0	0	0	0		P
MARILEE SUD	COLLIN	3,651	5,333	7,053	8,479	9,971	11,560		P
HICKORY CREEK SUD	COLLIN	71	94	115	136	158	182	P	P
JOSEPHINE	COLLIN	920	1,238	1,487	1,788	2,075	2,387	P	P
LAVON WSC	COLLIN	2,728	7,152	10,546	15,475	22,000	30,000		P
LOWRY CROSSING	COLLIN	1,898	2,434	2,910	3,000	3,000	3,000		
LUCAS	COLLIN	6,400	9,849	12,000	15,500	22,000	30,000		
MCKINNEY	COLLIN	130,000	200,000	275,000	350,000	380,000	380,000		
MELISSA	COLLIN	5,000	23,000	35,000	50,000	70,000	77,044		
MILLIGAN WSC	COLLIN	1,621	1,621	1,621	1,621	1,621	1,621		
MURPHY	COLLIN	14,000	28,500	28,500	28,500	28,500	28,500		
NEVADA	COLLIN	690	1,500	1,800	3,600	6,000	15,000		
NEW HOPE	COLLIN	826	1,200	2,000	3,000	4,500	10,000		
NORTH COLLIN WSC	COLLIN	5,044	6,510	7,808	9,138	10,530	12,012		
PARKER	COLLIN	3,900	10,900	16,000	26,000	38,000	52,000		
PLANO	COLLIN	257,676	263,300	267,200	269,200	271,200	272,200		P
PRINCETON	COLLIN	6,178	12,356	18,000	30,000	50,000	75,000		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for						Region Split Pop.(1)	County Split Pop.(2)
		2010	2020	2030	2040	2050	2060		
PROSPER	COLLIN	8,000	12,000	21,000	29,000	47,000	50,000		P
RICHARDSON	COLLIN	22,000	34,000	34,000	34,000	34,000	34,000		P
ROYSE CITY	COLLIN	1,371	4,075	8,000	12,000	16,000	20,562		P
SACHSE	COLLIN	4,929	6,400	6,400	6,400	6,400	6,400		P
SAINT PAUL	COLLIN	1,000	2,500	5,000	8,000	9,500	10,000		
SOUTH GRAYSON WSC	COLLIN	1,500	1,550	1,600	1,625	1,650	1,675		P
WESTON	COLLIN	2,000	4,000	7,000	20,000	35,000	60,000		
WYLIE	COLLIN	38,490	49,862	60,335	71,728	71,728	71,728		P
	COLLIN TOTAL	**790,648**	**1,046,601**	**1,265,373**	**1,526,407**	**1,761,082**	**1,938,067**		
BOLIVAR WSC	COOKE	1,666	1,787	1,849	1,859	1,859	1,858		P
COUNTY-OTHER	COOKE	9,487	10,181	10,533	10,590	10,586	10,586		
GAINESVILLE	COOKE	16,800	19,000	21,400	23,900	26,400	29,000		
KIOWA HOMEOWNERS WSC	COOKE	3,324	3,567	3,691	3,711	3,710	3,709		
LINDSAY	COOKE	879	943	976	981	981	981		
MUENSTER	COOKE	1,700	1,800	1,900	2,000	2,100	2,200		
TWO WAY SUD	COOKE	84	90	93	93	93	93		P
VALLEY VIEW	COOKE	1,500	3,000	5,000	7,000	12,000	15,000		
WOODBINE WSC	COOKE	5,234	5,773	6,307	6,839	7,370	7,901		P
	COOKE TOTAL	**40,674**	**46,141**	**51,749**	**56,973**	**65,099**	**71,328**		
ADDISON	DALLAS	16,000	20,534	22,358	23,629	24,515	25,133		
BALCH SPRINGS	DALLAS	21,083	22,564	23,849	24,963	25,930	26,768		
CARROLLTON	DALLAS	50,500	51,000	51,800	52,320	52,850	53,400		P
CEDAR HILL	DALLAS	46,206	66,679	78,036	81,573	81,573	81,573		P
COCKRELL HILL	DALLAS	4,782	4,947	5,028	5,067	5,086	5,095		
COMBINE	DALLAS	846	1,048	1,168	1,287	1,442	1,649		P
COMBINE WSC	DALLAS	1,392	1,840	2,106	2,370	2,714	3,173		P
COPPELL	DALLAS	40,000	40,000	40,000	40,000	40,000	40,000		P
COUNTY-OTHER	DALLAS	1,474	1,143	887	687	533	412		
DALLAS	DALLAS	1,229,768	1,323,858	1,398,950	1,499,354	1,664,187	1,956,134		P
DALLAS COUNTY WCID #6	DALLAS	0	0	0	0	0	0		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for						Region Split Pop.(1)	County Split Pop.(2)
		2010	2020	2030	2040	2050	2060		
DE SOTO	DALLAS	47,649	57,243	65,849	73,881	82,923	85,400		
DUNCANVILLE	DALLAS	37,100	37,100	37,100	37,100	37,100	37,100		
EAST FORK SUD	DALLAS	816	860	886	912	946	991		P
FARMERS BRANCH	DALLAS	30,470	33,161	35,608	37,833	39,855	41,693		
GARLAND	DALLAS	232,685	234,650	241,767	243,000	243,000	243,000		P
GLENN HEIGHTS	DALLAS	8,493	9,826	11,447	12,948	14,337	15,625		P
GRAND PRAIRIE	DALLAS	134,158	152,534	179,441	204,281	231,537	231,537		P
GRAPEVINE	DALLAS	0	0	0	0	0	0		P
HIGHLAND PARK	DALLAS	8,937	9,025	9,106	9,181	9,249	9,313		
HUTCHINS	DALLAS	3,200	4,000	5,000	6,500	8,500	14,000		
IRVING	DALLAS	219,238	240,099	255,853	267,751	276,736	283,521		
LANCASTER	DALLAS	38,000	59,664	65,301	65,301	65,301	65,301		
LEWISVILLE	DALLAS	2	2	2	2	2	2		P
MESQUITE	DALLAS	142,000	165,000	180,000	183,162	183,437	183,491		P
OVILLA	DALLAS	265	454	718	1,162	1,704	2,500		P
RICHARDSON	DALLAS	80,880	82,000	82,000	82,000	82,000	82,000		P
ROCKETT SUD	DALLAS	2,469	3,094	3,465	3,833	4,313	4,954		P
ROWLETT	DALLAS	51,671	63,171	72,480	80,014	86,111	91,047		P
SACHSE	DALLAS	15,631	17,300	20,600	20,600	20,600	20,600		P
SARDIS-LONE ELM WSC	DALLAS	36	36	36	36	36	36		P
SEAGOVILLE	DALLAS	13,000	16,300	19,500	22,800	25,474	27,438		P
SUNNYVALE	DALLAS	5,000	7,000	9,000	11,000	13,000	13,300		
UNIVERSITY PARK	DALLAS	24,092	24,647	25,046	25,335	25,543	25,693		
WILMER	DALLAS	3,800	4,400	5,200	7,500	14,000	22,000		
WYLIE	DALLAS	709	900	1,048	1,246	1,246	1,246		P
	DALLAS TOTAL	**2,512,352**	**2,756,079**	**2,950,635**	**3,128,628**	**3,365,780**	**3,695,125**		
ARGYLE	DENTON	3,750	8,935	12,983	14,550	16,282	18,000		
ARGYLE WSC	DENTON	5,965	6,012	6,012	6,012	6,012	6,012		
AUBREY	DENTON	2,830	5,375	8,755	11,767	15,814	21,252		
BARTONVILLE	DENTON	1,500	4,500	5,000	5,000	5,000	5,000		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
BARTONVILLE WSC	DENTON	1,400	1,604	1,786	1,948	2,094	2,224		
BOLIVAR WSC	DENTON	7,201	8,937	18,000	40,000	65,000	87,999		P
CARROLLTON	DENTON	70,500	73,000	76,700	79,000	80,600	81,400		P
CELINA	DENTON	0	2,739	5,798	10,267	15,702	18,118		P
COPPELL	DENTON	415	577	715	832	932	1,016		P
COPPER CANYON	DENTON	1,300	1,600	1,900	2,200	2,500	2,800		
CORINTH	DENTON	21,032	24,000	26,000	28,000	30,000	31,500		
COUNTY-OTHER	DENTON	42,742	56,446	65,410	73,718	81,794	90,112		
CROSS ROADS	DENTON	1,500	3,800	3,800	3,800	3,800	3,800		
DALLAS	DENTON	26,219	28,183	29,162	29,649	29,891	30,012		P
DENTON	DENTON	120,726	173,980	229,964	295,000	363,586	498,488		
DENTON COUNTY FWSD No.1A	DENTON	3,092	4,952	6,701	8,501	10,328	12,240		
DOUBLE OAK	DENTON	3,000	3,000	3,000	3,000	3,000	3,000		
FLOWER MOUND	DENTON	66,667	75,555	93,000	93,000	93,000	93,000		
FORT WORTH	DENTON	5,866	36,268	55,784	80,890	114,032	146,148		P
FRISCO	DENTON	37,341	40,700	71,049	93,279	108,138	108,138		P
HACKBERRY	DENTON	1,086	1,619	2,120	2,361	2,477	2,533		
HEBRON	DENTON	500	500	500	500	500	500		
HICKORY CREEK	DENTON	4,150	5,600	6,500	7,941	7,941	7,941		
HIGHLAND VILLAGE	DENTON	15,148	16,868	17,862	18,000	18,000	18,000		
JUSTIN	DENTON	3,177	5,252	8,474	13,926	17,000	18,759		
KRUGERVILLE	DENTON	1,672	1,918	2,228	2,900	3,783	5,422		
KRUM	DENTON	4,200	4,600	5,000	5,500	6,200	7,000		
LAKE DALLAS	DENTON	7,902	9,102	9,933	9,933	9,933	9,933		
LEWISVILLE	DENTON	97,707	110,000	122,000	136,000	155,000	176,513		P
LINCOLN PARK	DENTON	680	835	990	1,145	1,300	1,500		
LITTLE ELM	DENTON	24,000	29,250	35,650	40,371	40,371	40,371		
MUSTANG SUD	DENTON	6,580	9,897	13,015	24,500	36,000	47,000		
NORTHLAKE	DENTON	1,700	4,974	5,753	11,059	16,364	19,684		
OAK POINT	DENTON	3,988	8,534	12,812	14,471	16,141	17,905		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
PILOT POINT	DENTON	5,047	7,067	12,000	13,290	14,100	15,000		
PLANO	DENTON	5,624	7,800	7,800	7,800	7,800	7,800		P
PONDER	DENTON	1,350	5,000	10,000	16,000	18,500	19,000		
PROSPER	DENTON	0	8,000	14,000	21,000	23,000	25,000		P
ROANOKE	DENTON	7,000	10,080	13,160	16,240	21,615	26,197		
SANGER	DENTON	7,750	12,750	17,947	21,400	23,998	25,000		
SHADY SHORES	DENTON	2,474	3,228	3,936	3,936	3,936	3,936		
SOUTHLAKE	DENTON	788	1,361	1,600	2,504	3,689	3,967		P
THE COLONY	DENTON	40,500	56,000	63,000	65,000	67,000	67,600		
TROPHY CLUB	DENTON	8,253	9,307	10,211	10,995	11,841	12,687		
	DENTON TOTAL	**674,322**	**889,705**	**1,118,010**	**1,347,185**	**1,573,994**	**1,839,507**		
BARDWELL	ELLIS	838	1,075	1,308	1,546	1,813	2,107		
BRANDON-IRENE WSC	ELLIS	79	89	99	109	120	132	P	P
BUENA VISTA - BETHEL SUD	ELLIS	3,858	5,049	6,447	8,035	9,771	11,661		
CEDAR HILL	ELLIS	49	49	49	49	49	49		P
COMMUNITY WATER COMPANY	ELLIS	1,134	1,414	1,690	1,972	2,288	2,636	P	P
COUNTY-OTHER	ELLIS	10,707	10,707	10,707	10,707	10,707	10,707		
ENNIS	ELLIS	20,539	26,290	33,655	43,081	55,148	70,596		
FERRIS	ELLIS	2,631	3,000	3,400	3,900	4,500	5,000		
FILES VALLEY WSC	ELLIS	1,000	1,115	1,230	1,345	1,460	1,575	P	P
GLENN HEIGHTS	ELLIS	2,930	4,007	5,069	6,154	7,368	8,707		P
GRAND PRAIRIE	ELLIS	435	1,938	4,862	7,827	11,076	11,076		P
ITALY	ELLIS	2,376	2,731	3,081	3,438	3,838	4,279		
JOHNSON COUNTY SUD	ELLIS	217	283	348	415	490	573	P	P
MANSFIELD	ELLIS	1,000	2,000	4,000	7,000	10,000	12,000	P	P
MAYPEARL	ELLIS	1,000	1,250	1,500	1,500	1,500	1,500		
MIDLOTHIAN	ELLIS	16,500	33,000	45,000	55,000	65,000	75,000		
MILFORD	ELLIS	737	737	737	737	737	737		
MOUNTAIN PEAK SUD	ELLIS	6,691	7,509	7,964	9,194	11,305	14,031	P	P
OAK LEAF	ELLIS	1,502	1,774	2,042	2,316	2,622	2,960		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for						Region Split Pop.[1]	County Split Pop.[2]
		2010	2020	2030	2040	2050	2060		
OVILLA	ELLIS	3,585	5,616	7,572	9,346	9,346	9,346		P
PALMER	ELLIS	2,178	2,335	2,490	2,648	2,826	3,022		
PECAN HILL	ELLIS	813	943	1,072	1,203	1,350	1,512		
RED OAK	ELLIS	12,500	21,000	26,000	28,000	30,000	32,000		
RICE WSC	ELLIS	1,027	1,377	1,722	2,075	2,470	2,905		P
ROCKETT SUD	ELLIS	33,188	43,366	55,279	65,000	70,000	70,000		P
SARDIS-LONE ELM WSC	ELLIS	12,000	16,000	20,000	20,000	20,000	20,000		P
VENUS	ELLIS	0	0	0	0	0	0	P	P
WAXAHACHIE	ELLIS	30,000	39,000	46,342	59,322	75,937	97,206		
	ELLIS TOTAL	**169,514**	**233,654**	**293,665**	**351,919**	**411,721**	**471,317**		
BONHAM	FANNIN	11,516	12,603	16,000	22,000	30,000	37,000		
COUNTY-OTHER	FANNIN	11,610	11,568	11,391	11,091	10,735	10,322		
ECTOR	FANNIN	652	691	720	741	763	786		
HICKORY CREEK SUD	FANNIN	173	191	204	213	222	233	P	P
HONEY GROVE	FANNIN	1,858	2,100	2,500	3,000	3,500	4,000		
LADONIA	FANNIN	800	1,600	2,000	2,200	2,500	3,000		
LEONARD	FANNIN	2,149	2,502	3,500	5,500	8,000	10,000		
NORTH HUNT WSC	FANNIN	380	427	462	488	514	542	P	P
SAVOY	FANNIN	869	889	910	930	952	974		
SOUTHWEST FANNIN COUNTY	FANNIN	7,100	8,549	9,556	10,461	11,266	12,072		P
TRENTON	FANNIN	1,000	1,500	2,500	4,000	6,000	8,000		
WHITEWRIGHT	FANNIN	22	28	32	35	38	41		P
	FANNIN TOTAL	**38,129**	**42,648**	**49,775**	**60,659**	**74,490**	**86,970**		
COUNTY-OTHER	FREESTONE	9,298	9,717	9,935	9,998	9,998	9,998		
FAIRFIELD	FREESTONE	3,700	4,500	5,300	6,100	6,900	7,500		
FLO COMMUNITY WSC	FREESTONE	252	263	269	271	271	271	P	P
TEAGUE	FREESTONE	5,201	5,846	6,450	7,135	7,779	8,424		
WORTHAM	FREESTONE	1,250	1,500	1,750	2,000	2,200	2,400		
	FREESTONE TOTAL	**19,701**	**21,826**	**23,704**	**25,504**	**27,148**	**28,593**		
BELLS	GRAYSON	1,400	2,100	2,750	3,250	3,700	4,000		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
COLLINSVILLE	GRAYSON	2,035	2,835	3,635	4,435	5,235	6,035		
COUNTY-OTHER	GRAYSON	26,925	26,799	26,482	25,160	23,185	20,727		
DENISON	GRAYSON	25,000	28,000	30,000	31,000	32,000	33,000		
GUNTER	GRAYSON	2,000	3,500	5,000	6,500	8,000	9,000		
MARILEE SUD	GRAYSON	649	1,067	1,600	2,200	3,500	5,000		P
HOWE	GRAYSON	3,000	4,500	6,500	8,500	9,772	10,781		
LUELLA WSC	GRAYSON	3,300	3,800	4,300	4,950	5,080	5,770		
POTTSBORO	GRAYSON	3,000	5,000	7,000	9,000	11,000	12,000		
SHERMAN	GRAYSON	39,300	44,400	50,600	57,700	67,000	80,000		
SOUTH GRAYSON WSC	GRAYSON	1,200	1,900	2,500	3,200	4,000	5,000		P
SOUTHMAYD	GRAYSON	1,200	1,500	2,000	3,000	4,500	5,600		
SOUTHWEST FANNIN COUNTY	GRAYSON	391	391	391	391	391	391		P
TIOGA	GRAYSON	1,100	2,500	3,500	4,000	4,400	4,600		
TOM BEAN	GRAYSON	1,100	1,300	1,500	1,700	1,900	2,000		
TWO WAY SUD	GRAYSON	4,997	6,630	8,158	9,726	11,289	12,852		P
VAN ALSTYNE	GRAYSON	3,000	7,500	13,500	17,000	18,500	19,200		
WHITESBORO	GRAYSON	4,400	5,000	5,700	6,500	7,500	10,000		
WHITEWRIGHT	GRAYSON	2,000	3,200	4,500	5,500	6,500	7,500		P
WOODBINE WSC	GRAYSON	102	106	109	110	111	112		P
	GRAYSON TOTAL	**126,099**	**152,028**	**179,725**	**203,822**	**227,563**	**253,568**		
ATHENS	HENDERSON	13,208	15,807	18,967	22,795	27,398	32,921	P	
BETHEL-ASH WSC	HENDERSON	2,025	2,474	2,917	3,371	3,925	4,625	P	P
COUNTY-OTHER	HENDERSON	1,328	1,327	1,326	1,326	1,325	1,324	P	
EAST CEDAR CREEK FWSD	HENDERSON	9,973	11,178	13,363	14,568	15,773	16,978		
EUSTACE	HENDERSON	865	865	865	865	865	865		
GUN BARREL CITY	HENDERSON	6,131	7,201	8,256	9,338	10,658	12,324		
LOG CABIN	HENDERSON	883	1,046	1,200	1,200	1,200	1,200		
MABANK	HENDERSON	437	510	585	664	760	880		P
MALAKOFF	HENDERSON	2,390	2,535	2,678	2,824	3,003	3,228		
PAYNE SPRINGS	HENDERSON	730	781	831	882	945	1,024		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.[(1)]	County Split Pop.[(2)]
SEVEN POINTS	HENDERSON	1,402	1,681	1,956	2,238	2,582	3,016		
TOOL	HENDERSON	2,618	2,990	3,357	3,733	4,192	4,771		
TRINIDAD	HENDERSON	1,112	1,135	1,158	1,181	1,210	1,246		
VIRGINIA HILL WSC	HENDERSON	3,131	3,146	3,161	3,176	3,195	3,219		
WEST CEDAR CREEK MUD	HENDERSON	10,021	12,333	14,612	16,951	19,804	23,405		P
	HENDERSON TOTAL	**56,254**	**65,009**	**75,232**	**85,112**	**96,835**	**111,026**	P	
BRYSON	JACK	542	559	570	570	570	570		
COUNTY-OTHER	JACK	4,375	4,918	5,448	5,948	6,448	6,948		
JACKSBORO	JACK	4,650	4,798	4,897	4,897	4,897	4,897		
	JACK TOTAL	**9,567**	**10,275**	**10,915**	**11,415**	**11,915**	**12,415**		
ABLES SPRINGS WSC	KAUFMAN	4,809	6,529	8,297	10,257	12,683	15,693	P	P
COLLEGE MOUND WSC	KAUFMAN	9,150	11,333	13,576	16,062	19,140	22,958		
COMBINE	KAUFMAN	1,547	1,921	2,306	2,732	3,260	3,914		P
COMBINE WSC	KAUFMAN	2,730	3,897	5,096	6,425	8,071	10,112		P
COUNTY-OTHER	KAUFMAN	13,767	13,767	13,767	13,767	13,767	13,767		
CRANDALL	KAUFMAN	4,373	5,933	7,537	9,314	11,515	14,245		
DALLAS	KAUFMAN	0	0	0	0	0	0		P
FORNEY	KAUFMAN	13,000	24,000	30,000	35,000	39,000	42,803		
FORNEY LAKE WSC	KAUFMAN	3,531	3,938	4,922	6,153	7,691	9,613		P
GASTONIA-SCURRY SUD	KAUFMAN	7,322	9,211	10,730	13,054	15,944	19,541		
HIGH POINT WSC	KAUFMAN	3,102	3,898	4,715	5,622	6,744	8,136		P
KAUFMAN	KAUFMAN	8,256	10,864	13,020	14,753	16,484	19,883		
KEMP	KAUFMAN	1,400	1,700	2,000	2,000	2,000	2,000		
MABANK	KAUFMAN	2,637	3,219	3,816	4,478	5,298	6,314		P
MACBEE SUD	KAUFMAN	277	348	421	502	602	726	P	P
MESQUITE	KAUFMAN	2	3	4	6	8	10		P
OAK GROVE	KAUFMAN	928	1,141	1,360	1,602	1,902	2,274		
POST OAK BEND CITY	KAUFMAN	659	1,075	1,754	2,862	4,671	7,623		
SCURRY	KAUFMAN	678	789	918	1,068	1,242	1,445		
SEAGOVILLE	KAUFMAN	17	27	37	48	62	79		P

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.[1]	County Split Pop.[2]
TALTY	KAUFMAN	1,800	3,832	5,256	6,834	8,788	11,211		
TERRELL	KAUFMAN	16,185	45,005	65,000	85,000	97,000	110,000		
WEST CEDAR CREEK MUD	KAUFMAN	7,079	10,234	13,477	17,070	21,519	27,038		P
	KAUFMAN TOTAL	**103,249**	**162,664**	**208,009**	**254,609**	**297,391**	**349,385**		
BLOOMING GROVE	NAVARRO	897	897	897	897	897	897		
BRANDON-IRENE WSC	NAVARRO	221	238	256	276	299	328	P	P
CHATFIELD WSC	NAVARRO	4,200	6,000	7,800	9,799	11,718	14,075		
COMMUNITY WATER COMPANY	NAVARRO	1,041	1,301	1,626	2,032	2,541	3,176	P	P
CORSICANA	NAVARRO	27,132	28,340	29,598	30,964	32,594	34,597		
COUNTY-OTHER	NAVARRO	1,760	1,760	1,760	1,760	1,760	1,760		
DAWSON	NAVARRO	909	971	1,036	1,106	1,190	1,293		
FROST	NAVARRO	550	550	550	550	550	550		
KERENS	NAVARRO	1,937	1,937	1,937	1,937	1,937	1,937		
M E N WSC	NAVARRO	3,421	3,755	4,137	4,477	4,762	5,180		
NAVARRO MILLS WSC	NAVARRO	3,090	3,690	4,290	5,000	5,800	6,600		
RICE	NAVARRO	954	1,123	1,299	1,490	1,718	1,998		
RICE WSC	NAVARRO	6,640	8,357	10,145	12,086	14,402	17,247		P
	NAVARRO TOTAL	**52,752**	**58,919**	**65,331**	**72,374**	**80,168**	**89,638**		
ALEDO	PARKER	2,710	5,620	9,120	12,620	13,258	13,258		
ANNETTA	PARKER	1,579	1,972	2,289	2,564	2,856	3,176		
ANNETTA SOUTH	PARKER	708	836	939	1,028	1,123	1,227		
AZLE	PARKER	2,191	2,795	3,473	4,060	4,682	5,362		P
COUNTY-OTHER	PARKER	37,741	37,332	38,304	38,662	36,500	34,303		
CRESSON	PARKER	403	492	601	734	896	1,093	P	P
FORT WORTH	PARKER	14,079	62,864	99,172	114,490	126,035	134,456		P
HUDSON OAKS	PARKER	2,000	2,438	2,972	3,500	4,000	4,500		
MINERAL WELLS	PARKER	4,000	4,000	4,000	4,000	4,000	4,000	P	P
RENO	PARKER	2,569	2,676	2,763	2,838	2,918	3,005		
SANCTUARY	PARKER	715	1,675	2,435	2,875	3,305	3,708		
SPRINGTOWN	PARKER	3,000	4,000	5,000	6,000	7,000	8,000		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
WALNUT CREEK SUD	PARKER	18,917	27,988	44,342	55,000	58,000	60,000		P
WEATHERFORD	PARKER	26,877	33,000	38,365	43,389	48,773	54,799		
WILLOW PARK	PARKER	4,164	5,871	8,278	10,000	11,200	12,000		
	PARKER TOTAL	**121,653**	**193,559**	**262,053**	**301,760**	**324,546**	**342,887**		
BLACKLAND WSC	ROCKWALL	4,280	5,786	7,093	8,500	10,160	12,106	P	P
CASH SUD	ROCKWALL	638	860	1,053	1,260	1,505	1,792	P	P
COUNTY-OTHER	ROCKWALL	1,816	1,816	1,816	1,816	1,816	1,816		
DALLAS	ROCKWALL	21	21	21	21	21	21		P
EAST FORK SUD	ROCKWALL	58	58	58	58	58	58		P
FATE	ROCKWALL	6,222	12,007	15,062	17,923	19,997	21,379		
FORNEY LAKE WSC	ROCKWALL	2,769	3,937	4,922	6,152	7,690	9,613		P
HEATH	ROCKWALL	6,971	9,857	12,362	15,058	18,238	21,968		
HIGH POINT WSC	ROCKWALL	298	415	517	626	755	906		P
LAVON WSC	ROCKWALL	2,473	7,154	9,408	9,525	9,668	11,841		P
MCLENDON-CHISHOLM	ROCKWALL	1,800	2,000	2,200	2,400	2,765	3,255		
MT ZION WSC	ROCKWALL	1,700	1,700	1,700	1,700	1,700	1,700		
R-C-H WSC	ROCKWALL	3,630	5,280	5,400	5,500	5,500	5,500		
ROCKWALL	ROCKWALL	37,438	64,647	80,000	93,595	96,067	96,067		
ROWLETT	ROCKWALL	7,600	7,685	7,698	7,700	7,700	7,700		P
ROYSE CITY	ROCKWALL	10,629	16,925	20,446	25,184	29,646	34,438		P
WYLIE	ROCKWALL	801	1,238	1,617	2,026	2,026	2,026		P
	ROCKWALL TOTAL	**89,144**	**141,386**	**171,373**	**199,044**	**215,312**	**232,186**		
ARLINGTON	TARRANT	380,628	425,000	450,000	472,065	472,065	472,065		
AZLE	TARRANT	9,917	14,000	20,000	27,000	34,000	40,000		P
BEDFORD	TARRANT	50,001	52,395	54,407	56,098	57,519	58,713		
BENBROOK	TARRANT	24,000	27,000	30,000	36,000	43,000	51,000		
BETHESDA WSC	TARRANT	10,585	13,110	15,707	18,447	21,735	25,620	P	P
BLUE MOUND	TARRANT	2,500	2,500	2,500	2,500	2,500	2,500		
BURLESON	TARRANT	4,885	6,218	7,589	9,035	10,770	12,820	P	P
COLLEYVILLE	TARRANT	24,500	28,000	28,000	28,000	28,000	28,000		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.[1]	County Split Pop.[2]
COMMUNITY WSC	TARRANT	3,396	3,447	3,500	3,556	3,623	3,702		P
COUNTY-OTHER	TARRANT	23,911	23,911	23,911	23,911	23,911	23,911		
CROWLEY	TARRANT	11,023	13,473	17,147	23,271	28,170	30,620		
DALWORTHINGTON GARDENS	TARRANT	2,467	2,650	2,771	2,850	2,902	2,935		
EDGECLIFF	TARRANT	2,550	2,550	2,550	2,550	2,550	2,550		
EULESS	TARRANT	53,446	60,416	63,854	65,550	66,386	66,798		
EVERMAN	TARRANT	6,200	6,600	6,600	6,600	6,600	6,600		
FOREST HILL	TARRANT	12,000	13,090	14,210	15,392	16,738	17,574		
FORT WORTH	TARRANT	720,305	839,366	1,009,371	1,236,870	1,504,335	1,845,854		P
GRAND PRAIRIE	TARRANT	35,407	41,528	46,708	47,907	47,907	47,907		P
GRAPEVINE	TARRANT	51,352	55,000	60,000	60,000	60,000	60,000		P
HALTOM CITY	TARRANT	41,000	50,322	53,058	54,428	55,113	55,456		
HASLET	TARRANT	2,000	4,000	7,000	7,000	7,000	7,000		
HURST	TARRANT	38,829	41,000	41,000	41,000	41,000	41,000		
JOHNSON COUNTY SUD	TARRANT	2,189	2,732	3,290	3,879	4,586	5,421	P	P
KELLER	TARRANT	40,127	45,026	51,310	51,310	51,310	51,310		
KENNEDALE	TARRANT	7,000	9,064	10,114	10,824	11,303	11,626		
LAKE WORTH	TARRANT	4,854	5,400	6,000	6,600	7,200	7,500		
LAKESIDE	TARRANT	1,252	1,451	1,655	1,871	2,130	2,436		
MANSFIELD	TARRANT	55,711	77,369	98,364	116,016	128,409	141,800	P	P
NORTH RICHLAND HILLS	TARRANT	64,861	73,503	79,341	83,286	85,951	87,751		
PANTEGO	TARRANT	2,318	2,318	2,318	2,318	2,318	2,318		
PELICAN BAY	TARRANT	1,830	2,050	2,277	2,515	2,801	3,139		
RICHLAND HILLS	TARRANT	8,400	9,000	9,600	10,300	10,700	10,850		
RIVER OAKS	TARRANT	7,100	7,100	7,100	7,100	7,100	7,100		
SAGINAW	TARRANT	18,813	22,803	25,711	27,829	29,373	30,499		
SANSOM PARK VILLAGE	TARRANT	4,376	4,527	4,644	4,734	4,804	4,857		
SOUTHLAKE	TARRANT	27,231	28,275	28,507	29,420	30,499	32,033		P
WATAUGA	TARRANT	23,423	24,632	25,000	25,000	25,000	25,000		
WESTOVER HILLS	TARRANT	658	658	658	658	658	658		

Table F.1
Adopted Water User Group Population Projections

Water User Group (WUG)	County	Projected Population for 2010	2020	2030	2040	2050	2060	Region Split Pop.(1)	County Split Pop.(2)
WESTWORTH VILLAGE	TARRANT	3,224	3,403	3,618	3,869	4,156	4,586		
WHITE SETTLEMENT	TARRANT	15,800	17,000	18,000	19,000	20,500	22,000		
	TARRANT TOTAL	**1,800,069**	**2,061,887**	**2,337,390**	**2,646,559**	**2,964,622**	**3,353,509**		
ALVORD	WISE	1,336	1,478	1,615	1,751	1,906	2,085		
AURORA	WISE	1,500	1,800	2,000	2,149	2,507	2,905		
BOLIVAR WSC	WISE	1,519	1,741	1,957	2,867	3,989	5,979		P
BOYD	WISE	1,500	2,000	2,500	3,000	3,500	3,500		
BRIDGEPORT	WISE	5,900	8,352	12,001	14,296	16,657	19,936		
CHICO	WISE	1,300	1,500	1,800	2,200	2,700	3,300		
COMMUNITY WSC	WISE	140	141	142	143	144	145		P
COUNTY-OTHER	WISE	31,801	35,218	35,218	35,218	35,218	35,218		
DECATUR	WISE	6,804	8,508	11,738	15,253	19,751	23,225		
FORT WORTH	WISE	2,347	12,089	17,356	22,400	28,808	35,075		P
NEW FAIRVIEW	WISE	1,587	2,167	2,732	3,290	3,921	4,654		
NEWARK	WISE	1,137	1,772	2,339	3,302	4,458	6,216		
PARADISE	WISE	563	691	848	1,041	1,278	1,568		
RHOME	WISE	1,621	2,640	4,300	6,000	7,700	9,400		
RUNAWAY BAY	WISE	1,411	1,720	2,097	2,400	2,700	3,000		
WALNUT CREEK SUD	WISE	2,426	3,666	5,781	7,000	7,500	8,000		P
WEST WISE RURAL SUD	WISE	3,474	3,864	4,287	4,758	5,283	5,865		
	WISE TOTAL	**66,366**	**89,347**	**108,711**	**127,068**	**148,020**	**170,071**		
	REGION C TOTAL	**6,670,493**	**7,971,728**	**9,171,650**	**10,399,038**	**11,645,686**	**13,045,592**		

1) If "P" is present in this column, the Water User Group (WUG) is located in more than one Region and the projections listed in the row represent only the WUG's population projections within Region C, not the WUG's total population projections. If the "P" is present for a county total entry, then the county has been split by Regional boundaries and the projections listed in the row represent only the county's populations within Region C, not the county's total population projections.

2) If "P" is present in this column, the Water User Group (WUG) is located in more than one county and the projections listed in the row represent only the WUG's population projections within that particular county, not the WUG's total population projections.

Table F.2
Population Totals for Multi-County Water User Groups

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
AZLE	PARKER	2,191	2,795	3,473	4,060	4,682	5,362
AZLE	TARRANT	9,917	14,000	20,000	27,000	34,000	40,000
AZLE TOTAL		**12,108**	**16,795**	**23,473**	**31,060**	**38,682**	**45,362**
BOLIVAR WSC	COOKE	1,666	1,787	1,849	1,859	1,859	1,858
BOLIVAR WSC	DENTON	7,201	8,937	18,000	40,000	65,000	87,999
BOLIVAR WSC	WISE	1,519	1,741	1,957	2,867	3,989	5,979
BOLIVAR WSC TOTAL		**10,386**	**12,465**	**21,806**	**44,726**	**70,848**	**95,836**
BRANDON-IRENE WSC	ELLIS	79	89	99	109	120	132
BRANDON-IRENE WSC	NAVARRO	221	238	256	276	299	328
BRANDON-IRENE WSC TOTAL		**300**	**327**	**355**	**385**	**419**	**460**
CARROLLTON	DALLAS	50,500	51,000	51,800	52,320	52,850	53,400
CARROLLTON	DENTON	70,500	73,000	76,700	79,000	80,600	81,400
CARROLLTON TOTAL		**121,000**	**124,000**	**128,500**	**131,320**	**133,450**	**134,800**
CEDAR HILL	DALLAS	46,206	66,679	78,036	81,573	81,573	81,573
CEDAR HILL	ELLIS	49	49	49	49	49	49
CEDAR HILL TOTAL		**46,255**	**66,728**	**78,085**	**81,622**	**81,622**	**81,622**
CELINA	COLLIN	5,000	22,675	48,000	85,000	130,000	150,000
CELINA	DENTON	0	2,739	5,798	10,267	15,702	18,118
CELINA TOTAL		**5,000**	**25,414**	**53,798**	**95,267**	**145,702**	**168,118**
COMBINE	DALLAS	846	1,048	1,168	1,287	1,442	1,649
COMBINE	KAUFMAN	1,547	1,921	2,306	2,732	3,260	3,914
COMBINE TOTAL		**2,393**	**2,969**	**3,474**	**4,019**	**4,702**	**5,563**
COMBINE WSC	DALLAS	1,392	1,840	2,106	2,370	2,714	3,173
COMBINE WSC	KAUFMAN	2,730	3,897	5,096	6,425	8,071	10,112
COMBINE WSC TOTAL		**4,122**	**5,737**	**7,202**	**8,795**	**10,785**	**13,285**
COMMUNITY WATER COMPANY	ELLIS	1,134	1,414	1,690	1,972	2,288	2,636
COMMUNITY WATER COMPANY	NAVARRO	1,041	1,301	1,626	2,032	2,541	3,176
COMMUNITY WATER COMPANY TOTAL		**2,175**	**2,715**	**3,316**	**4,004**	**4,829**	**5,812**
COMMUNITY WSC	TARRANT	3,396	3,447	3,500	3,556	3,623	3,702
COMMUNITY WSC	WISE	140	141	142	143	144	145
COMMUNITY WSC TOTAL		3,536	3,588	3,642	3,699	3,767	3,847
COPPELL	DALLAS	40,000	40,000	40,000	40,000	40,000	40,000
COPPELL	DENTON	415	577	715	832	932	1,016
COPPELL TOTAL		**40,415**	**40,577**	**40,715**	**40,832**	**40,932**	**41,016**

Table F.2
Population Totals for Multi-County Water User Groups

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
DALLAS	COLLIN	56,316	62,938	66,867	69,199	70,582	72,600
DALLAS	DALLAS	1,229,768	1,323,858	1,398,950	1,499,354	1,664,187	1,956,134
DALLAS	DENTON	26,219	28,183	29,162	29,649	29,891	30,012
DALLAS	KAUFMAN	0	0	0	0	0	0
DALLAS	ROCKWALL	21	21	21	21	21	21
DALLAS TOTAL		**1,312,324**	**1,415,000**	**1,495,000**	**1,598,223**	**1,764,681**	**2,058,767**
EAST FORK SUD	COLLIN	7,904	9,085	10,131	11,203	12,325	13,519
EAST FORK SUD	DALLAS	816	860	886	912	946	991
EAST FORK SUD	ROCKWALL	58	58	58	58	58	58
EAST FORK SUD TOTAL		**8,778**	**10,003**	**11,075**	**12,173**	**13,329**	**14,568**
FORNEY LAKE WSC	KAUFMAN	3,531	3,938	4,922	6,153	7,691	9,613
FORNEY LAKE WSC	ROCKWALL	2,769	3,937	4,922	6,152	7,690	9,613
FORNEY LAKE WSC TOTAL		**6,300**	**7,875**	**9,844**	**12,305**	**15,381**	**19,226**
FORT WORTH	DENTON	5,866	36,268	55,784	80,890	114,032	146,148
FORT WORTH	PARKER	14,079	62,864	99,172	114,490	126,035	134,456
FORT WORTH	TARRANT	720,305	839,366	1,009,371	1,236,870	1,504,335	1,845,854
FORT WORTH	WISE	2,347	12,089	17,356	22,400	28,808	35,075
FORT WORTH TOTAL		**742,597**	**950,587**	**1,181,683**	**1,454,650**	**1,773,210**	**2,161,533**
FRISCO	COLLIN	71,330	107,300	125,951	152,721	171,862	171,862
FRISCO	DENTON	37,341	40,700	71,049	93,279	108,138	108,138
FRISCO TOTAL		108,671	148,000	197,000	246,000	280,000	280,000
GARLAND	COLLIN	0	0	0	0	0	0
GARLAND	DALLAS	232,685	234,650	241,767	243,000	243,000	243,000
GARLAND TOTAL		**232,685**	**234,650**	**241,767**	**243,000**	**243,000**	**243,000**
GLENN HEIGHTS	DALLAS	8,493	9,826	11,447	12,948	14,337	15,625
GLENN HEIGHTS	ELLIS	2,930	4,007	5,069	6,154	7,368	8,707
GLENN HEIGHTS TOTAL		**11,423**	**13,833**	**16,516**	**19,102**	**21,705**	**24,332**
GRAND PRAIRIE	DALLAS	134,158	152,534	179,441	204,281	231,537	231,537
GRAND PRAIRIE	ELLIS	435	1,938	4,862	7,827	11,076	11,076
GRAND PRAIRIE	TARRANT	35,407	41,528	46,708	47,907	47,907	47,907
GRAND PRAIRIE TOTAL		**170,000**	**196,000**	**231,011**	**260,015**	**290,520**	**290,520**
GRAPEVINE	DALLAS	0	0	0	0	0	0
GRAPEVINE	TARRANT	51,352	55,000	60,000	60,000	60,000	60,000
GRAPEVINE TOTAL		**51,352**	**55,000**	**60,000**	**60,000**	**60,000**	**60,000**
HICKORY CREEK SUD	COLLIN	71	94	115	136	158	182
HICKORY CREEK SUD	FANNIN	173	191	204	213	222	233
HICKORY CREEK SUD TOTAL		**244**	**285**	**319**	**349**	**380**	**415**

Table F.2
Population Totals for Multi-County Water User Groups

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
HIGH POINT WSC	KAUFMAN	3,102	3,898	4,715	5,622	6,744	8,136
HIGH POINT WSC	ROCKWALL	298	415	517	626	755	906
HIGH POINT WSC TOTAL		**3,400**	**4,313**	**5,232**	**6,248**	**7,499**	**9,042**
JOHNSON COUNTY SUD	ELLIS	217	283	348	415	490	573
JOHNSON COUNTY SUD	TARRANT	2,189	2,732	3,290	3,879	4,586	5,421
JOHNSON COUNTY SUD TOTAL		**2,406**	**3,015**	**3,638**	**4,294**	**5,076**	**5,994**
LAVON WSC	COLLIN	2,728	7,152	10,546	15,475	22,000	30,000
LAVON WSC	ROCKWALL	2,473	7,154	9,408	9,525	9,668	11,841
LAVON WSC TOTAL		**5,201**	**14,306**	**19,954**	**25,000**	**31,668**	**41,841**
LEWISVILLE	DALLAS	2	2	2	2	2	2
LEWISVILLE	DENTON	97,707	110,000	122,000	136,000	155,000	176,513
LEWISVILLE TOTAL		**97,709**	**110,002**	**122,002**	**136,002**	**155,002**	**176,515**
MABANK	HENDERSON	437	510	585	664	760	880
MABANK	KAUFMAN	2,637	3,219	3,816	4,478	5,298	6,314
MABANK TOTAL		**3,074**	**3,729**	**4,401**	**5,142**	**6,058**	**7,194**
MANSFIELD	ELLIS	1,000	2,000	4,000	7,000	10,000	12,000
MANSFIELD	TARRANT	55,711	77,369	98,364	116,016	128,409	141,800
MANSFIELD TOTAL		**56,711**	**79,369**	**102,364**	**123,016**	**138,409**	**153,800**
MARILEE SUD	COLLIN	3,651	5,333	7,053	8,479	9,971	11,560
MARILEE SUD	GRAYSON	649	1,067	1,600	2,200	3,500	5,000
MARILEE SUD TOTAL		**4,300**	**6,400**	**8,653**	**10,679**	**13,471**	**16,560**
MESQUITE	DALLAS	142,000	165,000	180,000	183,162	183,437	183,491
MESQUITE	KAUFMAN	2	3	4	6	8	10
MESQUITE TOTAL		**142,002**	**165,003**	**180,004**	**183,168**	**183,445**	**183,501**
OVILLA	DALLAS	265	454	718	1,162	1,704	2,500
OVILLA	ELLIS	3,585	5,616	7,572	9,346	9,346	9,346
OVILLA TOTAL		**3,850**	**6,070**	**8,290**	**10,508**	**11,050**	**11,846**
PLANO	COLLIN	257,676	263,300	267,200	269,200	271,200	272,200
PLANO	DENTON	5,624	7,800	7,800	7,800	7,800	7,800
PLANO TOTAL		**263,300**	**271,100**	**275,000**	**277,000**	**279,000**	**280,000**
PROSPER	COLLIN	8,000	12,000	21,000	29,000	47,000	50,000
PROSPER	DENTON	0	8,000	14,000	21,000	23,000	25,000
PROSPER TOTAL		**8,000**	**20,000**	**35,000**	**50,000**	**70,000**	**75,000**
RICE WSC	ELLIS	1,027	1,377	1,722	2,075	2,470	2,905
RICE WSC	NAVARRO	6,640	8,357	10,145	12,086	14,402	17,247
RICE WSC TOTAL		**7,667**	**9,734**	**11,867**	**14,161**	**16,872**	**20,152**

Table F.2
Population Totals for Multi-County Water User Groups

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
RICHARDSON	COLLIN	22,000	34,000	34,000	34,000	34,000	34,000
RICHARDSON	DALLAS	80,880	82,000	82,000	82,000	82,000	82,000
RICHARDSON TOTAL		102,880	116,000	116,000	116,000	116,000	116,000
ROCKETT SUD	DALLAS	2,469	3,094	3,465	3,833	4,313	4,954
ROCKETT SUD	ELLIS	33,188	43,366	55,279	65,000	70,000	70,000
ROCKETT SUD TOTAL		**35,657**	**46,460**	**58,744**	**68,833**	**74,313**	**74,954**
ROWLETT	DALLAS	51,671	63,171	72,480	80,014	86,111	91,047
ROWLETT	ROCKWALL	7,600	7,685	7,698	7,700	7,700	7,700
ROWLETT TOTAL		**59,271**	**70,856**	**80,178**	**87,714**	**93,811**	**98,747**
ROYSE CITY	COLLIN	1,371	4,075	8,000	12,000	16,000	20,562
ROYSE CITY	ROCKWALL	10,629	16,925	20,446	25,184	29,646	34,438
ROYSE CITY TOTAL		**12,000**	**21,000**	**28,446**	**37,184**	**45,646**	**55,000**
SACHSE	COLLIN	4,929	6,400	6,400	6,400	6,400	6,400
SACHSE	DALLAS	15,631	17,300	20,600	20,600	20,600	20,600
SACHSE TOTAL		**20,560**	**23,700**	**27,000**	**27,000**	**27,000**	**27,000**
SARDIS-LONE ELM WSC	DALLAS	36	36	36	36	36	36
SARDIS-LONE ELM WSC	ELLIS	12,000	16,000	20,000	20,000	20,000	20,000
SARDIS-LONE ELM WSC		**12,036**	**16,036**	**20,036**	**20,036**	**20,036**	**20,036**
SEAGOVILLE	DALLAS	13,000	16,300	19,500	22,800	25,474	27,438
SEAGOVILLE	KAUFMAN	17	27	37	48	62	79
SEAGOVILLE TOTAL		**13,017**	**16,327**	**19,537**	**22,848**	**25,536**	**27,517**
SOUTH GRAYSON WSC	COLLIN	1,500	1,550	1,600	1,625	1,650	1,675
SOUTH GRAYSON WSC	GRAYSON	1,200	1,900	2,500	3,200	4,000	5,000
SOUTH GRAYSON WSC TOTAL		**2,700**	**3,450**	**4,100**	**4,825**	**5,650**	**6,675**
SOUTHLAKE	DENTON	788	1,361	1,600	2,504	3,689	3,967
SOUTHLAKE	TARRANT	27,231	28,275	28,507	29,420	30,499	32,033
SOUTHLAKE TOTAL		**28,019**	**29,636**	**30,107**	**31,924**	**34,188**	**36,000**
SOUTHWEST FANNIN COUNTY SUD	FANNIN	7,100	8,549	9,556	10,461	11,266	12,072
SOUTHWEST FANNIN COUNTY SUD	GRAYSON	391	391	391	391	391	391
SOUTHWEST FANNIN COUNTY SUD TOTAL		**7,491**	**8,940**	**9,947**	**10,852**	**11,657**	**12,463**
TWO WAY SUD	COOKE	84	90	93	93	93	93
TWO WAY SUD	GRAYSON	4,997	6,630	8,158	9,726	11,289	12,852
TWO WAY SUD TOTAL		**5,081**	**6,720**	**8,251**	**9,819**	**11,382**	**12,945**
WALNUT CREEK SUD	PARKER	18,917	27,988	44,342	55,000	58,000	60,000
WALNUT CREEK SUD	WISE	2,426	3,666	5,781	7,000	7,500	8,000
WALNUT CREEK SUD TOTAL		**21,343**	**31,654**	**50,123**	**62,000**	**65,500**	**68,000**

Table F.2
Population Totals for Multi-County Water User Groups

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
WEST CEDAR CREEK MUD	HENDERSON	10,021	12,333	14,612	16,951	19,804	23,405
WEST CEDAR CREEK MUD	KAUFMAN	7,079	10,234	13,477	17,070	21,519	27,038
WEST CEDAR CREEK MUD TOTAL		**17,100**	**22,567**	**28,089**	**34,021**	**41,323**	**50,443**
WHITEWRIGHT	FANNIN	22	28	32	35	38	41
WHITEWRIGHT	GRAYSON	2,000	3,200	4,500	5,500	6,500	7,500
WHITEWRIGHT TOTAL		**2,022**	**3,228**	**4,532**	**5,535**	**6,538**	**7,541**
WOODBINE WSC	COOKE	5,234	5,773	6,307	6,839	7,370	7,901
WOODBINE WSC	GRAYSON	102	106	109	110	111	112
WOODBINE WSC TOTAL		**5,336**	**5,879**	**6,416**	**6,949**	**7,481**	**8,013**
WYLIE	COLLIN	38,490	49,862	60,335	71,728	71,728	71,728
WYLIE	DALLAS	709	900	1,048	1,246	1,246	1,246
WYLIE	ROCKWALL	801	1,238	1,617	2,026	2,026	2,026
WYLIE TOTAL		**40,000**	**52,000**	**63,000**	**75,000**	**75,000**	**75,000**

APPENDIX G

DEMAND PROJECTIONS

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[(1)])

		Projected Demand for						Region	County
WUG	County	2010	2020	2030	2040	2050	2060	Split Pop.[(2)]	Split Pop.[(3)]
ALLEN	COLLIN	20,207	24,699	27,663	27,694	27,694	27,694		
ANNA	COLLIN	1,653	2,948	4,399	5,865	7,541	12,568		
BLUE RIDGE	COLLIN	305	627	1,090	1,700	2,473	2,782		
CADDO BASIN SUD	COLLIN	607	756	942	1,132	1,329	1,541	P	P
CELINA	COLLIN	1,238	5,562	11,667	20,566	31,454	36,293		P
COUNTY-OTHER	COLLIN	818	743	677	613	554	504		
CULLEOKA WSC	COLLIN	908	1,350	1,625	1,883	2,185	2,506		
DALLAS	COLLIN	16,086	17,766	18,650	19,146	19,449	20,005		P
DANVILLE WSC	COLLIN	845	1,153	1,417	1,693	1,990	2,306		
EAST FORK SUD	COLLIN	1,116	1,252	1,373	1,506	1,643	1,802		P
FAIRVIEW	COLLIN	3,469	3,992	5,012	6,593	6,593	6,593		
FARMERSVILLE	COLLIN	627	1,176	1,680	2,520	3,696	5,041		
FRISCO	COLLIN	23,730	34,735	39,927	48,413	54,480	54,480		P
GARLAND	COLLIN	0	0	0	0	0	0		P
MARILEE SUD	COLLIN	450	645	837	997	1,173	1,360		P
HICKORY CREEK SUD	COLLIN	12	16	19	22	25	29	P	P
JOSEPHINE	COLLIN	256	343	411	495	574	660	P	P
LAVON WSC	COLLIN	293	873	1,276	1,855	2,637	3,596		P
LOWRY CROSSING	COLLIN	366	458	541	554	551	551		
LUCAS	COLLIN	1,032	1,533	1,828	2,344	3,327	4,537		
MCKINNEY	COLLIN	34,366	53,767	73,929	94,092	102,157	102,157		
MELISSA	COLLIN	807	4,972	7,527	10,753	15,055	16,570		
MILLIGAN WSC	COLLIN	202	196	191	185	183	183		
MURPHY	COLLIN	4,234	8,556	8,556	8,556	8,556	8,556		
NEVADA	COLLIN	247	528	631	1,254	2,090	5,226		
NEW HOPE	COLLIN	267	383	632	944	1,416	3,148		
NORTH COLLIN WSC	COLLIN	876	1,116	1,321	1,525	1,757	2,005		
PARKER	COLLIN	1,494	4,078	5,950	9,669	14,132	19,338		
PLANO	COLLIN	73,602	74,618	75,125	75,386	75,642	75,921		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
PRINCETON	COLLIN	1,329	2,657	3,871	6,452	10,753	16,130		
PROSPER	COLLIN	1,998	3,239	5,669	7,829	12,688	13,498		P
RICHARDSON	COLLIN	6,925	10,588	10,550	10,435	10,359	10,359		P
ROYSE CITY	COLLIN	286	858	1,676	2,514	3,351	4,307		P
SACHSE	COLLIN	1,055	1,384	1,376	1,362	1,362	1,362		P
SAINT PAUL	COLLIN	192	468	930	1,479	1,756	1,848		
SOUTH GRAYSON WSC	COLLIN	212	215	219	220	222	225		P
WESTON	COLLIN	251	672	1,482	4,234	7,410	12,702		
WYLIE	COLLIN	6,553	8,378	10,138	12,052	12,052	12,052		P
	COLLIN Total	**208,914**	**277,300**	**330,807**	**394,532**	**450,309**	**490,435**		
BOLIVAR WSC	COOKE	205	244	286	285	285	285		P
COUNTY-OTHER	COOKE	1,074	1,232	1,251	1,234	1,221	1,222		
GAINESVILLE	COOKE	3,387	3,746	4,171	4,578	5,027	5,522		
KIOWA HOMEOWNERS WSC	COOKE	875	931	955	952	948	947		
LINDSAY	COOKE	154	161	164	162	160	160		
MUENSTER	COOKE	339	351	366	379	395	414		
TWO WAY SUD	COOKE	10	11	11	11	11	11		P
VALLEY VIEW	COOKE	187	363	594	808	1,371	1,714		
WOODBINE WSC	COOKE	656	699	749	789	842	902		P
	COOKE Total	**6,887**	**7,738**	**8,547**	**9,198**	**10,260**	**11,177**		
ADDISON	DALLAS	7,904	10,074	10,919	11,514	11,918	12,218		
BALCH SPRINGS	DALLAS	2,621	2,730	2,805	2,852	2,934	3,028		
CARROLLTON	DALLAS	10,804	10,740	10,792	10,783	10,834	10,946		P
CEDAR HILL	DALLAS	10,093	14,340	16,696	17,270	17,270	17,270		P
COCKRELL HILL	DALLAS	653	687	681	670	667	668		
COMBINE	DALLAS	100	126	136	148	165	188		P
COMBINE WSC	DALLAS	156	221	250	279	319	373		P
COPPELL	DALLAS	11,425	11,336	11,246	11,201	11,157	11,157		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
COUNTY-OTHER	DALLAS	190	146	110	81	60	47		
DALLAS	DALLAS	351,267	373,694	390,189	414,835	458,576	539,023		P
DALLAS COUNTY WCID #6	DALLAS	0	0	0	0	0	0		
DE SOTO	DALLAS	10,355	12,375	14,162	15,807	17,741	18,271		
DUNCANVILLE	DALLAS	7,605	7,563	7,522	7,439	7,356	7,356		
EAST FORK SUD	DALLAS	115	118	120	123	126	132		P
FARMERS BRANCH	DALLAS	11,229	12,109	12,883	13,603	14,286	14,945		
GARLAND	DALLAS	42,484	42,055	42,789	42,462	42,190	42,190		P
GLENN HEIGHTS	DALLAS	1,046	1,189	1,359	1,523	1,670	1,820		P
GRAND PRAIRIE	DALLAS	22,992	25,889	29,848	33,980	38,514	38,514		P
GRAPEVINE	DALLAS	0	0	0	0	0	0		P
HIGHLAND PARK	DALLAS	4,255	4,266	4,274	4,278	4,289	4,319		
HUTCHINS	DALLAS	821	1,008	1,255	1,624	2,123	3,497		
IRVING	DALLAS	58,202	66,967	70,502	73,780	76,256	78,126		
LANCASTER	DALLAS	5,704	8,755	9,436	9,363	9,363	9,363		
LEWISVILLE	DALLAS	1	1	1	1	1	1		P
MESQUITE	DALLAS	26,245	30,311	33,873	34,468	34,520	34,530		P
OVILLA	DALLAS	68	116	182	293	429	630		P
RICHARDSON	DALLAS	25,458	25,535	25,443	25,167	24,984	24,984		P
ROCKETT SUD	DALLAS	326	399	439	481	536	616		P
ROWLETT	DALLAS	10,129	12,242	13,964	15,326	16,301	17,236		P
SACHSE	DALLAS	3,344	3,740	4,430	4,384	4,384	4,384		P
SARDIS-LONE ELM WSC	DALLAS	8	7	7	7	7	7		P
SEAGOVILLE	DALLAS	2,082	2,538	3,014	3,473	3,881	4,180		P
SUNNYVALE	DALLAS	1,770	2,454	3,135	3,820	4,514	4,618		
UNIVERSITY PARK	DALLAS	7,799	7,896	7,940	7,946	7,983	8,030		
WILMER	DALLAS	443	527	612	874	1,631	2,563		
WYLIE	DALLAS	121	151	176	209	209	209		P
	DALLAS Total	**637,815**	**692,305**	**731,190**	**770,064**	**827,194**	**915,439**		

Table G.1

Adopted Municipal Water Demand Projections (in Acre-Feet(1))

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.(2)	County Split Pop.(3)
ARGYLE	DENTON	1,227	2,902	4,217	4,710	5,271	5,827		
ARGYLE WSC	DENTON	1,263	1,259	1,239	1,219	1,212	1,212		
AUBREY	DENTON	396	855	1,373	1,819	2,445	3,285		
BARTONVILLE	DENTON	282	943	1,042	1,042	1,042	1,042		
BARTONVILLE WSC	DENTON	307	347	380	410	439	466		
BOLIVAR WSC	DENTON	887	1,221	2,782	6,138	9,975	13,504		P
CARROLLTON	DENTON	15,083	15,373	15,980	16,282	16,522	16,686		P
CELINA	DENTON	-	672	1,409	2,484	3,799	4,384		P
COPPELL	DENTON	119	164	201	233	260	283		P
COPPER CANYON	DENTON	357	432	507	582	661	740		
CORINTH	DENTON	4,665	5,269	5,679	6,085	6,519	6,845		
COUNTY-OTHER	DENTON	8,905	11,571	13,262	14,863	16,492	18,169		
CROSS ROADS	DENTON	575	1,234	1,230	1,230	1,230	1,230		
DALLAS	DENTON	7,489	7,955	8,134	8,203	8,237	8,270		P
DENTON	DENTON	24,612	34,884	45,594	58,158	71,679	98,275		
DENTON COUNTY FWSD	DENTON	991	1,581	2,132	2,704	3,286	3,894		
DOUBLE OAK	DENTON	716	706	699	696	692	692		
FLOWER MOUND	DENTON	17,325	23,189	32,085	32,085	32,085	32,085		
FORT WORTH	DENTON	1,386	8,409	12,810	18,394	25,802	33,069		P
FRISCO	DENTON	12,423	13,175	22,523	29,570	34,280	34,280		P
HACKBERRY	DENTON	142	210	275	304	319	326		
HEBRON	DENTON	114	111	110	109	109	109		
HICKORY CREEK	DENTON	753	1,004	1,158	1,405	1,405	1,405		
HIGHLAND VILLAGE	DENTON	3,733	4,100	4,302	4,295	4,274	4,274		
JUSTIN	DENTON	587	1,012	1,614	2,636	3,218	3,551		
KRUGERVILLE	DENTON	204	228	257	331	428	613		
KRUM	DENTON	640	721	773	838	945	1,066		
LAKE DALLAS	DENTON	1,354	1,580	1,702	1,691	1,680	1,680		
LEWISVILLE	DENTON	19,262	21,316	23,505	26,050	29,516	33,612		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
LINCOLN PARK	DENTON	102	132	155	178	202	234		
LITTLE ELM	DENTON	4,731	6,061	7,348	8,321	8,321	8,321		
MUSTANG WSC	DENTON	921	1,474	1,939	3,623	5,323	6,949		
NORTHLAKE	DENTON	268	808	934	1,796	2,658	3,197		
OAK POINT	DENTON	585	1,377	2,067	2,318	2,585	2,868		
PILOT POINT	DENTON	763	1,124	1,895	2,069	2,195	2,335		
PLANO	DENTON	1,606	2,210	2,193	2,184	2,176	2,176		P
PONDER	DENTON	250	913	1,815	2,903	3,357	3,448		
PROSPER	DENTON	-	2,160	3,779	5,669	6,209	6,749		P
ROANOKE	DENTON	1,756	2,732	3,538	4,348	5,787	7,013		
SANGER	DENTON	1,302	2,114	2,935	3,476	3,871	4,033		
SHADY SHORES	DENTON	357	510	613	608	604	604		
SOUTHLAKE	DENTON	262	451	529	825	1,215	1,306		P
THE COLONY	DENTON	5,761	7,778	8,609	8,810	9,006	9,087		
TROPHY CLUB	DENTON	2,847	3,190	3,477	3,732	4,019	4,306		
	DENTON Total	**147,308**	**195,457**	**248,800**	**295,426**	**341,350**	**393,500**		
BARDWELL	ELLIS	103	130	155	182	213	248		
BRANDON-IRENE WSC	ELLIS	10	11	11	12	13	15	P	P
BUENA VISTA - BETHEL SUD	ELLIS	1,387	1,810	2,311	2,880	3,502	4,180		
CEDAR HILL	ELLIS	11	11	10	10	10	10		P
COMMUNITY WATER COMPANY	ELLIS	116	171	201	230	264	304	P	P
COUNTY-OTHER	ELLIS	2,015	2,003	1,979	1,967	1,955	1,955		
ENNIS	ELLIS	3,497	4,358	5,504	6,949	8,834	11,308		
FERRIS	ELLIS	401	447	495	555	630	700		
FILES VALLEY WSC	ELLIS	208	227	247	265	286	309	P	P
GLENN HEIGHTS	ELLIS	361	485	602	724	858	1,014		P
GRAND PRAIRIE	ELLIS	74	329	809	1,302	1,842	1,842		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

		Projected Demand for						Region	County
WUG	County	2010	2020	2030	2040	2050	2060	Split Pop.[2]	Split Pop.[3]
ITALY	ELLIS	282	330	362	397	439	489		
JOHNSON COUNTY SUD	ELLIS	42	55	69	86	104	122	P	P
MANSFIELD	ELLIS	237	475	950	1,662	2,375	2,850	P	P
MAYPEARL	ELLIS	195	238	282	276	272	272		
MIDLOTHIAN	ELLIS	3,438	6,765	9,174	11,151	13,178	15,206		
MILFORD	ELLIS	132	130	127	125	122	122		
MOUNTAIN PEAK SUD	ELLIS	1,207	1,337	1,409	1,607	1,975	2,452	P	P
OAK LEAF	ELLIS	338	393	448	503	567	640		
OVILLA	ELLIS	924	1,434	1,917	2,355	2,355	2,355		P
PALMER	ELLIS	271	282	293	303	320	342		
PECAN HILL	ELLIS	160	183	205	228	254	285		
RED OAK	ELLIS	2,366	4,022	4,922	5,269	5,612	5,986		
RICE WSC	ELLIS	127	165	204	242	288	338		P
ROCKETT SUD	ELLIS	4,387	5,586	6,997	8,155	8,704	8,704		P
SARDIS-LONE ELM WSC	ELLIS	2,500	3,298	4,077	4,033	4,010	4,010		P
VENUS	ELLIS	0	0	0	0	0	0	P	P
WAXAHACHIE	ELLIS	6,855	8,781	10,330	13,090	16,672	21,341		
	ELLIS Total	**31,644**	**43,456**	**54,090**	**64,558**	**75,654**	**87,399**		
BONHAM	FANNIN	2,348	2,527	3,172	4,337	5,881	7,253		
COUNTY-OTHER	FANNIN	1,496	1,452	1,390	1,317	1,251	1,202		
ECTOR	FANNIN	96	99	101	102	104	107		
HICKORY CREEK SUD	FANNIN	30	32	34	34	36	38	P	P
HONEY GROVE	FANNIN	421	466	546	645	749	856		
LADONIA	FANNIN	291	577	715	779	879	1,055		
LEONARD	FANNIN	303	342	466	720	1,040	1,299		
NORTH HUNT WSC	FANNIN	49	55	60	63	66	70	P	P
SAVOY	FANNIN	108	108	106	105	107	109		
SOUTHWEST FANNIN COUNTY SUD	FANNIN	684	996	1,145	1,242	1,325	1,420		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

		Projected Demand for						Region	County
WUG	County	2010	2020	2030	2040	2050	2060	Split Pop.[2]	Split Pop.[3]
TRENTON	FANNIN	206	302	496	780	1,163	1,550		
WHITEWRIGHT	FANNIN	4	5	6	7	7	8		P
	FANNIN Total	**6,036**	**6,961**	**8,237**	**10,131**	**12,608**	**14,967**		
COUNTY-OTHER	FREESTONE	1,251	1,271	1,265	1,240	1,229	1,229		
FAIRFIELD	FREESTONE	829	988	1,146	1,298	1,461	1,588		
FLO COMMUNITY WSC	FREESTONE	20	20	20	20	19	19	P	P
TEAGUE	FREESTONE	536	720	773	839	906	982		
WORTHAM	FREESTONE	272	321	369	414	453	495		
	FREESTONE Total	**2,908**	**3,320**	**3,573**	**3,811**	**4,068**	**4,313**		
BELLS	GRAYSON	185	271	348	404	456	493		
COLLINSVILLE	GRAYSON	324	441	558	666	780	899		
COUNTY-OTHER	GRAYSON	3,468	3,393	3,263	3,016	2,753	2,461		
DENISON	GRAYSON	5,489	6,053	6,385	6,493	6,667	6,875		
GUNTER	GRAYSON	271	467	655	837	1,022	1,149		
Marilee SUD	GRAYSON	80	129	190	259	412	588		P
HOWE	GRAYSON	403	590	837	1,085	1,237	1,365		
LUELLA WSC	GRAYSON	410	460	511	582	592	672		
POTTSBORO	GRAYSON	504	851	1,176	1,492	1,811	1,976		
SHERMAN	GRAYSON	10,081	11,240	12,696	14,348	16,586	19,804		
SOUTH GRAYSON WSC	GRAYSON	169	264	342	434	538	672		P
SOUTHMAYD	GRAYSON	160	197	258	380	565	703		
SOUTHWEST FANNIN COUNTY SUD	GRAYSON	38	46	47	46	46	46		P
TIOGA	GRAYSON	192	428	588	663	725	757		
TOM BEAN	GRAYSON	259	301	343	383	426	448		
TWO WAY SUD	GRAYSON	565	802	968	1,144	1,315	1,497		P
VAN ALSTYNE	GRAYSON	504	1,411	2,510	3,142	3,419	3,549		
WHITESBORO	GRAYSON	764	851	958	1,070	1,227	1,635		
WHITEWRIGHT	GRAYSON	399	627	867	1,041	1,223	1,411		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

		Projected Demand for						Region	County
WUG	County	2010	2020	2030	2040	2050	2060	Split Pop.[2]	Split Pop.[3]
WOODBINE WSC	GRAYSON	13	13	13	13	13	13		P
	GRAYSON Total	**24,278**	**28,835**	**33,513**	**37,498**	**41,813**	**47,013**		
ATHENS	HENDERSON	2,693	3,169	3,739	4,392	5,248	6,306	P	
BETHEL-ASH WSC	HENDERSON	163	194	222	253	290	342	P	P
COUNTY-OTHER	HENDERSON	262	257	253	248	246	246	P	
EAST CEDAR CREEK FWSD	HENDERSON	1,698	1,866	2,215	2,382	2,580	2,777		
EUSTACE	HENDERSON	146	143	140	138	137	137		
GUN BARREL CITY	HENDERSON	1,408	1,629	1,840	2,071	2,352	2,720		
LOG CABIN	HENDERSON	96	128	144	142	141	141		
MABANK	HENDERSON	95	109	123	140	159	184		P
MALAKOFF	HENDERSON	348	361	372	383	404	434		
PAYNE SPRINGS	HENDERSON	165	174	182	191	203	220		
SEVEN POINTS	HENDERSON	188	222	254	288	330	385		
TOOL	HENDERSON	405	452	500	548	610	695		
TRINIDAD	HENDERSON	183	183	183	181	184	190		
VIRGINIA HILL WSC	HENDERSON	393	384	375	366	361	364		
WEST CEDAR CREEK MUD	HENDERSON	1,010	1,423	1,735	1,994	2,329	2,753		P
	HENDERSON Total	**9,253**	**10,694**	**12,277**	**13,717**	**15,574**	**17,894**	P	
BRYSON	JACK	96	97	96	94	94	94		
COUNTY-OTHER	JACK	549	600	647	686	736	793		
JACKSBORO	JACK	688	699	697	686	680	680		
	JACK Total	**1,333**	**1,396**	**1,440**	**1,466**	**1,510**	**1,567**		
ABLES SPRINGS WSC	KAUFMAN	512	783	976	1,195	1,478	1,828	P	P
COLLEGE MOUND WSC	KAUFMAN	758	1,155	1,582	1,853	2,187	2,623		
COMBINE	KAUFMAN	182	230	269	315	372	447		P
COMBINE WSC	KAUFMAN	306	467	605	756	949	1,189		P
COUNTY-OTHER	KAUFMAN	2,082	2,066	2,051	2,036	2,020	2,020		
CRANDALL	KAUFMAN	730	1,004	1,258	1,544	1,909	2,362		
DALLAS	KAUFMAN	0	0	0	0	0	0		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
FORNEY	KAUFMAN	2,097	4,033	4,973	5,763	6,422	7,048		
FORNEY LAKE WSC	KAUFMAN	771	847	1,048	1,296	1,611	2,014		P
GASTONIA-SCURRY SUD	KAUFMAN	771	1,104	1,262	1,506	1,840	2,255		
HIGH POINT WSC	KAUFMAN	330	467	555	655	778	939		P
KAUFMAN	KAUFMAN	1,322	1,716	2,013	2,264	2,511	3,029		
KEMP	KAUFMAN	224	267	307	300	296	296		
MABANK	KAUFMAN	576	692	808	943	1,110	1,323		P
MACBEE SUD	KAUFMAN	36	45	54	65	78	94	P	P
MESQUITE	KAUFMAN	-	1	1	1	1	2		P
OAK GROVE	KAUFMAN	124	148	172	201	236	283		
POST OAK BEND CITY	KAUFMAN	85	138	226	369	602	982		
SCURRY	KAUFMAN	87	102	118	138	160	186		
SEAGOVILLE	KAUFMAN	3	4	5	7	9	11		P
TALTY	KAUFMAN	813	1,717	2,337	3,024	3,878	4,948		
TERRELL	KAUFMAN	3,807	10,385	14,780	19,138	21,731	24,643		
WEST CEDAR CREEK MUD	KAUFMAN	714	1,181	1,600	2,008	2,531	3,180		P
	KAUFMAN Total	**16,330**	**28,552**	**37,000**	**45,377**	**52,709**	**61,702**		
BLOOMING GROVE	NAVARRO	161	157	155	152	150	150		
BRANDON-IRENE WSC	NAVARRO	27	28	30	31	33	36	P	P
CHATFIELD WSC	NAVARRO	428	726	935	1,153	1,378	1,655		
COMMUNITY WATER COMPANY	NAVARRO	106	157	193	237	293	366	P	P
CORSICANA	NAVARRO	6,200	6,381	6,564	6,763	7,083	7,518		
COUNTY-OTHER	NAVARRO	250	244	239	233	229	229		
DAWSON	NAVARRO	177	185	195	204	219	238		
FROST	NAVARRO	69	67	66	63	63	63		
KERENS	NAVARRO	460	453	447	440	436	436		
M E N WSC	NAVARRO	441	471	510	542	571	621		
NAVARRO MILLS WSC	NAVARRO	329	442	500	577	663	754		

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
RICE	NAVARRO	229	265	304	347	398	463		
RICE WSC	NAVARRO	818	1,002	1,205	1,408	1,678	2,009		P
	NAVARRO Total	**9,695**	**10,578**	**11,343**	**12,150**	**13,194**	**14,538**		
ALEDO	PARKER	455	957	1,532	2,106	2,213	2,213		
ANNETTA	PARKER	218	265	305	339	374	416		
ANNETTA SOUTH	PARKER	91	105	116	124	135	147		
AZLE	PARKER	353	438	533	614	708	811		P
COUNTY-OTHER	PARKER	4,735	4,558	4,591	4,547	4,252	3,996		
Cresson	PARKER	56	68	83	101	123	151	P	P
FORT WORTH	PARKER	3,328	14,576	22,773	26,034	28,518	30,423		P
HUDSON OAKS	PARKER	394	475	576	674	771	867		
MINERAL WELLS	PARKER	766	753	744	730	726	726	P	P
RENO	PARKER	319	321	322	321	327	337		
SANCTUARY	PARKER	92	216	314	370	426	478		
SPRINGTOWN	PARKER	504	659	807	961	1,113	1,272		
WALNUT CREEK SUD	PARKER	2,310	3,355	5,215	6,407	6,757	6,990		P
WEATHERFORD	PARKER	5,509	6,617	7,607	8,554	9,561	10,741		
WILLOW PARK	PARKER	681	934	1,298	1,557	1,731	1,855		
	PARKER Total	**19,811**	**34,297**	**46,816**	**53,439**	**57,735**	**61,423**		
BLACKLAND WSC	ROCKWALL	479	694	835	990	1,183	1,410	P	P
CASH SUD	ROCKWALL	82	111	136	162	194	231	P	P
COUNTY-OTHER	ROCKWALL	385	385	385	383	383	383		
DALLAS	ROCKWALL	6	6	6	6	6	6		P
EAST FORK SUD	ROCKWALL	8	8	8	8	8	8		P
FATE	ROCKWALL	2,091	3,968	4,943	5,842	6,496	6,945		
FORNEY LAKE WSC	ROCKWALL	605	847	1,048	1,296	1,611	2,014		P
HEATH	ROCKWALL	1,952	2,727	3,393	4,116	4,964	5,980		
HIGH POINT WSC	ROCKWALL	32	50	61	73	87	105		P
LAVON WSC	ROCKWALL	266	873	1,138	1,142	1,159	1,419		P

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
MCLENDON-CHISHOLM	ROCKWALL	272	296	320	347	396	467		
MT ZION WSC	ROCKWALL	442	436	430	425	421	421		
R-C-H WSC	ROCKWALL	642	911	919	918	912	912		
ROCKWALL	ROCKWALL	9,855	17,597	21,596	25,162	25,826	25,826		
ROWLETT	ROCKWALL	1,490	1,489	1,483	1,475	1,458	1,458		P
ROYSE CITY	ROCKWALL	2,215	3,564	4,283	5,275	6,210	7,214		P
WYLIE	ROCKWALL	136	208	272	340	340	340		P
	ROCKWALL Total	**20,958**	**34,170**	**41,256**	**47,960**	**51,654**	**55,139**		
ARLINGTON	TARRANT	77,597	85,215	89,219	92,537	92,008	92,008		
AZLE	TARRANT	1,600	2,195	3,069	4,083	5,141	6,049		P
BEDFORD	TARRANT	10,138	10,447	10,665	10,808	11,017	11,246		
BENBROOK	TARRANT	5,592	6,140	6,721	7,984	9,489	11,254		
BETHESDA WSC	TARRANT	1,530	1,850	2,182	2,542	2,970	3,501	P	P
BLUE MOUND	TARRANT	297	300	294	286	283	283		
BURLESON	TARRANT	799	989	1,190	1,397	1,653	1,967	P	P
COLLEYVILLE	TARRANT	8,123	9,190	9,127	9,096	9,064	9,064		
COMMUNITY WSC	TARRANT	426	421	416	406	410	419		P
COUNTY-OTHER	TARRANT	3,482	3,402	3,348	3,268	3,241	3,241		
CROWLEY	TARRANT	1,667	1,977	2,478	3,310	3,976	4,322		
DALWORTHINGTON GARDENS	TARRANT	771	816	847	862	874	884		
EDGECLIFF	TARRANT	460	451	443	434	428	428		
EULESS	TARRANT	9,698	10,760	11,158	11,308	11,377	11,448		
EVERMAN	TARRANT	771	798	776	754	747	747		
FOREST HILL	TARRANT	1,492	1,584	1,671	1,776	1,912	2,008		
FORT WORTH	TARRANT	170,244	194,624	231,781	281,251	340,384	417,660		P
GRAND PRAIRIE	TARRANT	6,068	7,048	7,769	7,969	7,969	7,969		P
GRAPEVINE	TARRANT	17,256	18,298	19,827	19,692	19,625	19,625		P
HALTOM CITY	TARRANT	6,521	7,835	8,142	8,231	8,272	8,324		

Table G.1
Adopted Municipal Water Demand Projections (in Acre-Feet[1])

		Projected Demand for						Region	County
WUG	County	2010	2020	2030	2040	2050	2060	Split Pop.[2]	Split Pop.[3]
HASLET	TARRANT	784	1,555	2,697	2,689	2,682	2,682		
HURST	TARRANT	7,524	7,807	7,670	7,532	7,486	7,486		
JOHNSON COUNTY SUD	TARRANT	419	532	656	799	976	1,154	P	P
KELLER	TARRANT	9,124	10,138	11,495	11,380	11,380	11,380		
KENNEDALE	TARRANT	1,255	1,594	1,756	1,867	1,937	1,992		
LAKE WORTH	TARRANT	930	1,010	1,102	1,190	1,290	1,344		
LAKESIDE	TARRANT	447	512	580	652	740	846		
MANSFIELD	TARRANT	13,230	18,373	23,359	27,550	30,493	33,673	P	P
NORTH RICHLAND HILLS	TARRANT	12,496	13,832	14,753	15,300	15,693	16,022		
PANTEGO	TARRANT	701	693	685	685	672	672		
PELICAN BAY	TARRANT	166	214	268	290	320	359		
RICHLAND HILLS	TARRANT	1,327	1,381	1,441	1,511	1,558	1,580		
RIVER OAKS	TARRANT	1,010	986	954	931	923	923		
SAGINAW	TARRANT	3,161	3,755	4,176	4,489	4,705	4,885		
SANSOM PARK VILLAGE	TARRANT	603	609	609	605	608	615		
SOUTHLAKE	TARRANT	9,059	9,375	9,420	9,689	10,044	10,549		P
WATAUGA	TARRANT	3,437	3,532	3,500	3,416	3,388	3,388		
WESTOVER HILLS	TARRANT	276	274	272	270	268	268		
WESTWORTH VILLAGE	TARRANT	350	412	426	442	470	519		
WHITE SETTLEMENT	TARRANT	2,531	2,647	2,742	2,831	3,031	3,253		
	TARRANT Total	**393,362**	**443,571**	**499,684**	**562,112**	**629,504**	**716,037**		
ALVORD	WISE	199	214	228	243	263	287		
AURORA	WISE	187	218	237	253	292	338		
BOLIVAR WSC	WISE	187	238	303	440	612	918		P
BOYD	WISE	215	278	339	397	459	459		
BRIDGEPORT	WISE	1,361	1,899	2,702	3,187	3,713	4,444		
CHICO	WISE	208	235	276	333	405	495		
COMMUNITY WSC	WISE	18	17	17	16	16	16		P
COUNTY-OTHER	WISE	3,776	4,261	4,221	4,142	4,103	4,103		

Table G.1

Adopted Municipal Water Demand Projections (in Acre-Feet[1])

WUG	County	Projected Demand for 2010	2020	2030	2040	2050	2060	Region Split Pop.[2]	County Split Pop.[3]
DECATUR	WISE	1,639	2,011	2,748	3,537	4,580	5,385		
FORT WORTH	WISE	555	2,803	3,985	5,094	6,518	7,936		P
NEW FAIRVIEW	WISE	201	272	340	409	488	579		
NEWARK	WISE	154	232	301	418	564	787		
PARADISE	WISE	73	89	109	134	165	202		
RHOME	WISE	590	955	1,541	2,151	2,760	3,369		
RUNAWAY BAY	WISE	296	356	430	489	547	608		
WALNUT CREEK SUD	WISE	296	439	680	815	874	932		P
WEST WISE RURAL SUD	WISE	483	524	567	618	681	756		
	WISE Total	**10,438**	**15,041**	**19,024**	**22,676**	**27,040**	**31,614**		
	REGION C TOTAL	**1,546,970**	**1,833,671**	**2,087,597**	**2,344,115**	**2,612,176**	**2,924,157**		

(1) An acft is an amount of water to cover one acre with one foot of water and equals 325,851 gallons.

(2) If "P" is present in this column, the Water User Group (WUG) is located in more than one Region and the projections listed in the row represent only the WUG's population projections within Region C, not the WUG's total population projections. If the "P" is present for a county total entry, then the county has been split by Regional boundaries and the projections listed in the row represent only the county's populations within Region C, not the county's total population projections.

(3) If "P" is present in this column, the Water User Group (WUG) is located in more than one county and the projections listed in the row represent only the WUG's population projections within that particular county, not the WUG's total population projections.

Table G.2
Municipal Demand Totals for Multi-County Water User Groups (in Acre-feet[1])

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
AZLE	PARKER	353	438	533	614	708	811
AZLE	TARRANT	1,600	2,195	3,069	4,083	5,141	6,049
AZLE TOTAL		**1,953**	**2,633**	**3,602**	**4,697**	**5,849**	**6,860**
BOLIVAR WSC	COOKE	205	244	286	285	285	285
BOLIVAR WSC	DENTON	887	1,221	2,782	6,138	9,975	13,504
BOLIVAR WSC	WISE	187	238	303	440	612	918
BOLIVAR WSC TOTAL		**1,279**	**1,703**	**3,371**	**6,863**	**10,872**	**14,707**
BRANDON-IRENE WSC	ELLIS	10	11	11	12	13	15
BRANDON-IRENE WSC	NAVARRO	27	28	30	31	33	36
BRANDON-IRENE WSC TOTAL		**37**	**39**	**41**	**43**	**46**	**51**
CARROLLTON	DALLAS	10,804	10,740	10,792	10,783	10,834	10,946
CARROLLTON	DENTON	15,083	15,373	15,980	16,282	16,522	16,686
CARROLLTON TOTAL		**25,887**	**26,113**	**26,772**	**27,065**	**27,356**	**27,632**
CEDAR HILL	DALLAS	10,093	14,340	16,696	17,270	17,270	17,270
CEDAR HILL	ELLIS	11	11	10	10	10	10
CEDAR HILL TOTAL		**10,104**	**14,351**	**16,706**	**17,280**	**17,280**	**17,280**
CELINA	COLLIN	1,238	5,562	11,667	20,566	31,454	36,293
CELINA	DENTON	0	672	1,409	2,484	3,799	4,384
CELINA TOTAL		**1,238**	**6,234**	**13,076**	**23,050**	**35,253**	**40,677**
COMBINE	DALLAS	100	126	136	148	165	188
COMBINE	KAUFMAN	182	230	269	315	372	447
COMBINE TOTAL		**282**	**356**	**405**	**463**	**537**	**635**
COMBINE WSC	DALLAS	156	221	250	279	319	373
COMBINE WSC	KAUFMAN	306	467	605	756	949	1,189
COMBINE WSC TOTAL		**462**	**688**	**855**	**1,035**	**1,268**	**1,562**
COMMUNITY WATER COMPANY	ELLIS	116	171	201	230	264	304
COMMUNITY WATER COMPANY	NAVARRO	106	157	193	237	293	366
COMMUNITY WATER COMPANY TOTAL		**222**	**328**	**394**	**467**	**557**	**670**
COMMUNITY WSC	TARRANT	426	421	416	406	410	419
COMMUNITY WSC	WISE	18	17	17	16	16	16
COMMUNITY WSC TOTAL		**444**	**438**	**433**	**422**	**426**	**435**
COPPELL	DALLAS	11,425	11,336	11,246	11,201	11,157	11,157
COPPELL	DENTON	119	164	201	233	260	283
COPPELL TOTAL		**11,544**	**11,500**	**11,447**	**11,434**	**11,417**	**11,440**

Table G.2
Municipal Demand Totals for Multi-County Water User Groups (in Acre-feet[1])

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
DALLAS	COLLIN	16,086	17,766	18,650	19,146	19,449	20,005
DALLAS	DALLAS	351,267	373,694	390,189	414,835	458,576	539,023
DALLAS	DENTON	7,489	7,955	8,134	8,203	8,237	8,270
DALLAS	KAUFMAN	0	0	0	0	0	0
DALLAS	ROCKWALL	6	6	6	6	6	6
DALLAS TOTAL		**374,848**	**399,421**	**416,979**	**442,190**	**486,268**	**567,304**
EAST FORK SUD	COLLIN	1,116	1,252	1,373	1,506	1,643	1,802
EAST FORK SUD	DALLAS	115	118	120	123	126	132
EAST FORK SUD	ROCKWALL	8	8	8	8	8	8
EAST FORK SUD TOTAL		**1,239**	**1,378**	**1,501**	**1,637**	**1,777**	**1,942**
FORNEY LAKE WSC	KAUFMAN	771	847	1,048	1,296	1,611	2,014
FORNEY LAKE WSC	ROCKWALL	605	847	1,048	1,296	1,611	2,014
FORNEY LAKE WSC TOTAL		**1,376**	**1,694**	**2,096**	**2,592**	**3,222**	**4,028**
FORT WORTH	DENTON	1,386	8,409	12,810	18,394	25,802	33,069
FORT WORTH	PARKER	3,328	14,576	22,773	26,034	28,518	30,423
FORT WORTH	TARRANT	170,244	194,624	231,781	281,251	340,384	417,660
FORT WORTH	WISE	555	2,803	3,985	5,094	6,518	7,936
FORT WORTH TOTAL		**175,513**	**220,412**	**271,349**	**330,773**	**401,222**	**489,088**
FRISCO	COLLIN	23,730	34,735	39,927	48,413	54,480	54,480
FRISCO	DENTON	12,423	13,175	22,523	29,570	34,280	34,280
FRISCO TOTAL		**36,153**	**47,910**	**62,450**	**77,983**	**88,760**	**88,760**
GARLAND	COLLIN	0	0	0	0	0	0
GARLAND	DALLAS	42,484	42,055	42,789	42,462	42,190	42,190
GARLAND TOTAL		**42,484**	**42,055**	**42,789**	**42,462**	**42,190**	**42,190**
GLENN HEIGHTS	DALLAS	1,046	1,189	1,359	1,523	1,670	1,820
GLENN HEIGHTS	ELLIS	361	485	602	724	858	1,014
GLENN HEIGHTS TOTAL		**1,407**	**1,674**	**1,961**	**2,247**	**2,528**	**2,834**
GRAND PRAIRIE	DALLAS	22,992	25,889	29,848	33,980	38,514	38,514
GRAND PRAIRIE	ELLIS	74	329	809	1,302	1,842	1,842
GRAND PRAIRIE	TARRANT	6,068	7,048	7,769	7,969	7,969	7,969
GRAND PRAIRIE TOTAL		**29,134**	**33,266**	**38,426**	**43,251**	**48,325**	**48,325**
GRAPEVINE	DALLAS	0	0	0	0	0	0
GRAPEVINE	TARRANT	17,256	18,298	19,827	19,692	19,625	19,625
GRAPEVINE TOTAL		**17,256**	**18,298**	**19,827**	**19,692**	**19,625**	**19,625**
HICKORY CREEK SUD	COLLIN	12	16	19	22	25	29
HICKORY CREEK SUD	FANNIN	30	32	34	34	36	38
HICKORY CREEK SUD TOTAL		**42**	**48**	**53**	**56**	**61**	**67**

Table G.2
Municipal Demand Totals for Multi-County Water User Groups (in Acre-feet[(1)])

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
HIGH POINT WSC	KAUFMAN	330	467	555	655	778	939
HIGH POINT WSC	ROCKWALL	32	50	61	73	87	105
HIGH POINT WSC TOTAL		**362**	**517**	**616**	**728**	**865**	**1,044**
JOHNSON COUNTY SUD	ELLIS	42	55	69	86	104	122
JOHNSON COUNTY SUD	TARRANT	419	532	656	799	976	1,154
JOHNSON COUNTY SUD TOTAL		**461**	**587**	**725**	**885**	**1,080**	**1,276**
LAVON WSC	COLLIN	293	873	1,276	1,855	2,637	3,596
LAVON WSC	ROCKWALL	266	873	1,138	1,142	1,159	1,419
LAVON WSC TOTAL		**559**	**1,746**	**2,414**	**2,997**	**3,796**	**5,015**
LEWISVILLE	DALLAS	1	1	1	1	1	1
LEWISVILLE	DENTON	19,262	21,316	23,505	26,050	29,516	33,612
LEWISVILLE TOTAL		**19,263**	**21,317**	**23,506**	**26,051**	**29,517**	**33,613**
MABANK	HENDERSON	95	109	123	140	159	184
MABANK	KAUFMAN	576	692	808	943	1,110	1,323
MABANK TOTAL		**671**	**801**	**931**	**1,083**	**1,269**	**1,507**
MANSFIELD	ELLIS	237	475	950	1,662	2,375	2,850
MANSFIELD	TARRANT	13,230	18,373	23,359	27,550	30,493	33,673
MANSFIELD	JOHNSON (G)	165	172	172	173	175	178
MANSFIELD TOTAL		**13,632**	**19,020**	**24,481**	**29,385**	**33,043**	**36,701**
MARILEE SUD	COLLIN	450	645	837	997	1,173	1,360
MARILEE SUD	GRAYSON	80	129	190	259	412	588
MARILEE SUD		**530**	**774**	**1,027**	**1,256**	**1,585**	**1,948**
MESQUITE	DALLAS	26,245	30,311	33,873	34,468	34,520	34,530
MESQUITE	KAUFMAN	0	1	1	1	1	2
MESQUITE TOTAL		26,245	30,312	33,874	34,469	34,521	34,532
OVILLA	DALLAS	68	116	182	293	429	630
OVILLA	ELLIS	924	1,434	1,917	2,355	2,355	2,355
OVILLA TOTAL		**992**	**1,550**	**2,099**	**2,648**	**2,784**	**2,985**
PLANO	COLLIN	73,602	74,618	75,125	75,386	75,642	75,921
PLANO	DENTON	1,606	2,210	2,193	2,184	2,176	2,176
PLANO TOTAL		**75,208**	**76,828**	**77,318**	**77,570**	**77,818**	**78,097**
PROSPER	COLLIN	1,998	3,239	5,669	7,829	12,688	13,498
PROSPER	DENTON	0	2,160	3,779	5,669	6,209	6,749
PROSPER TOTAL		**1,998**	**5,399**	**9,448**	**13,498**	**18,897**	**20,247**
RICE WSC	ELLIS	127	165	204	242	288	338
RICE WSC	NAVARRO	818	1,002	1,205	1,408	1,678	2,009
RICE WSC TOTAL		**945**	**1,167**	**1,409**	**1,650**	**1,966**	**2,347**

Table G.2
Municipal Demand Totals for Multi-County Water User Groups (in Acre-feet[(1)])

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
RICHARDSON	COLLIN	6,925	10,588	10,550	10,435	10,359	10,359
RICHARDSON	DALLAS	25,458	25,535	25,443	25,167	24,984	24,984
RICHARDSON TOTAL		**32,383**	**36,123**	**35,993**	**35,602**	**35,343**	**35,343**
ROCKETT SUD	DALLAS	326	399	439	481	536	616
ROCKETT SUD	ELLIS	4,387	5,586	6,997	8,155	8,704	8,704
ROCKETT SUD TOTAL		**4,713**	**5,985**	**7,436**	**8,636**	**9,240**	**9,320**
ROWLETT	DALLAS	10,129	12,242	13,964	15,326	16,301	17,236
ROWLETT	ROCKWALL	1,490	1,489	1,483	1,475	1,458	1,458
ROWLETT TOTAL		**11,619**	**13,731**	**15,447**	**16,801**	**17,759**	**18,694**
ROYSE CITY	COLLIN	286	858	1,676	2,514	3,351	4,307
ROYSE CITY	ROCKWALL	2,215	3,564	4,283	5,275	6,210	7,214
ROYSE CITY TOTAL		**2,501**	**4,422**	**5,959**	**7,789**	**9,561**	**11,521**
SACHSE	COLLIN	1,055	1,384	1,376	1,362	1,362	1,362
SACHSE	DALLAS	3,344	3,740	4,430	4,384	4,384	4,384
SACHSE TOTAL		**4,399**	**5,124**	**5,806**	**5,746**	**5,746**	**5,746**
SARDIS-LONE ELM WSC	DALLAS	8	7	7	7	7	7
SARDIS-LONE ELM WSC	ELLIS	2,500	3,298	4,077	4,033	4,010	4,010
SARDIS-LONE ELM WSC		**2,508**	**3,305**	**4,084**	**4,040**	**4,017**	**4,017**
SEAGOVILLE	DALLAS	2,082	2,538	3,014	3,473	3,881	4,180
SEAGOVILLE	KAUFMAN	3	4	5	7	9	11
SEAGOVILLE TOTAL		**2,085**	**2,542**	**3,019**	**3,480**	**3,890**	**4,191**
SOUTH GRAYSON WSC	COLLIN	212	215	219	220	222	225
SOUTH GRAYSON WSC	GRAYSON	169	264	342	434	538	672
SOUTH GRAYSON WSC TOTAL		**381**	**479**	**561**	**654**	**760**	**897**
SOUTHLAKE	DENTON	262	451	529	825	1,215	1,306
SOUTHLAKE	TARRANT	9,059	9,375	9,420	9,689	10,044	10,549
SOUTHLAKE TOTAL		**9,321**	**9,826**	**9,949**	**10,514**	**11,259**	**11,855**
SOUTHWEST FANNIN COUNTY SUD	FANNIN	684	996	1,145	1,242	1,325	1,420
SOUTHWEST FANNIN COUNTY SUD	GRAYSON	38	46	47	46	46	46
SOUTHWEST FANNIN COUNTY SUD TOTAL		**722**	**1,042**	**1,192**	**1,288**	**1,371**	**1,466**
TWO WAY SUD	COOKE	10	11	11	11	11	11
TWO WAY SUD	GRAYSON	565	802	968	1,144	1,315	1,497
TWO WAY SUD TOTAL		**575**	**813**	**979**	**1,155**	**1,326**	**1,508**
WALNUT CREEK SUD	PARKER	2,310	3,355	5,215	6,407	6,757	6,990
WALNUT CREEK SUD	WISE	296	439	680	815	874	932
WALNUT CREEK SUD TOTAL		**2,606**	**3,794**	**5,895**	**7,222**	**7,631**	**7,922**

Table G.2

Municipal Demand Totals for Multi-County Water User Groups (in Acre-feet[1])

Water User Group (WUG)	County	Projected Population for					
		2010	2020	2030	2040	2050	2060
WEST CEDAR CREEK MUD	HENDERSON	1,010	1,423	1,735	1,994	2,329	2,753
WEST CEDAR CREEK MUD	KAUFMAN	714	1,181	1,600	2,008	2,531	3,180
WEST CEDAR CREEK MUD TOTAL		**1,724**	**2,604**	**3,335**	**4,002**	**4,860**	**5,933**
WHITEWRIGHT	FANNIN	4	5	6	7	7	8
WHITEWRIGHT	GRAYSON	399	627	867	1,041	1,223	1,411
WHITEWRIGHT TOTAL		**403**	**632**	**873**	**1,048**	**1,230**	**1,419**
WOODBINE WSC	COOKE	656	699	749	789	842	902
WOODBINE WSC	GRAYSON	13	13	13	13	13	13
WOODBINE WSC TOTAL		**669**	**712**	**762**	**802**	**855**	**915**
WYLIE	COLLIN	6,553	8,378	10,138	12,052	12,052	12,052
WYLIE	DALLAS	121	151	176	209	209	209
WYLIE	ROCKWALL	136	208	272	340	340	340
WYLIE TOTAL		**6,810**	**8,737**	**10,586**	**12,601**	**12,601**	**12,601**

(1) An acft is an amount of water to cover one acre with one foot of water and equals 325,851 gallons.

Table G.3
Manufacturing Demand Projections
(No change from *2006 Region C Plan*)

	Manufacturing Demand Projections from the *2006 Region C Plan* (ac-ft)						Manufacturing Demand Projections for the *2011 Region C Plan* (ac-ft)					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	3,607	4,137	4,654	5,170	5,633	6,115	3,607	4,137	4,654	5,170	5,633	6,115
Cooke	273	306	335	364	389	421	273	306	335	364	389	421
Dallas	34,115	37,791	41,148	44,214	46,703	46,983	34,115	37,791	41,148	44,214	46,703	46,983
Denton	1,068	1,239	1,408	1,579	1,731	1,880	1,068	1,239	1,408	1,579	1,731	1,880
Ellis	3,466	3,670	3,841	3,987	4,089	3,912	3,466	3,670	3,841	3,987	4,089	3,912
Fannin	73	82	90	98	105	114	73	82	90	98	105	114
Freestone	0	0	0	0	0	0	0	0	0	0	0	0
Grayson	7,010	7,781	8,453	9,088	9,621	10,444	7,010	7,781	8,453	9,088	9,621	10,444
Henderson	110	118	133	151	172	195	110	118	133	151	172	195
Jack	2	2	2	2	2	2	2	2	2	2	2	2
Kaufman	760	813	869	928	993	1,061	760	813	869	928	993	1,061
Navarro	1,172	1,328	1,468	1,607	1,730	1,872	1,172	1,328	1,468	1,607	1,730	1,872
Parker	779	879	974	1,068	1,150	1,248	779	879	974	1,068	1,150	1,248
Rockwall	20	23	26	29	32	35	20	23	26	29	32	35
Tarrant	17,258	20,444	23,630	26,924	29,919	32,457	17,258	20,444	23,630	26,924	29,919	32,457
Wise	2,313	2,660	2,979	3,277	3,539	3,858	2,313	2,660	2,979	3,277	3,539	3,858
Region C Total	72,026	81,273	90,010	98,486	105,808	110,597	72,026	81,273	90,010	98,486	105,808	110,597

Table G.4
Steam Electric Power Demands Projections

	SEP Demand Projections from the *2006 Region C Plan* (ac-ft)						SEP Demand Projections for 2011 Region C Water Plan (ac-ft)					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	1,581	1,260	1,473	1,733	2,050	2,436	771	715	1,000	1,200	1,600	2,000
Cooke	0	0	0	0	0	0	0	0	0	0	0	0
Dallas	12,264	10,842	11,918	13,230	14,829	16,778	3,367	4,290	11,918	12,000	12,000	12,000
Denton	524	418	489	575	680	808	644	744	844	944	1,044	1,144
Ellis	14,237	20,379	23,825	28,027	33,148	39,391	981	698	1,450	3,741	5,754	7,878
Fannin	5,152	4,748	5,184	5,717	6,366	7,157	1,261	6,363	11,474	11,910	12,443	13,092
Freestone	18,210	20,524	23,999	28,234	33,398	39,692	12,173	18,210	20,524	23,999	28,234	33,398
Grayson	0	0	0	0	0	0	5,600	8,963	12,326	12,326	12,326	12,326
Henderson	2,387	2,308	2,376	2,458	2,559	2,681	460	427	7,000	8,000	9,000	10,000
Jack	0	3,674	4,296	5,053	5,977	7,102	2,162	2,500	2,700	2,900	3,100	3,300
Kaufman	8,979	17,798	20,808	24,478	28,950	34,403	8,979	10,000	10,000	10,000	10,000	10,000
Navarro	0	0	0	0	0	0	0	8,000	13,440	13,440	13,440	13,440
Parker	30	4,617	5,397	6,349	7,509	8,923	24	22	28	56	75	102
Rockwall	0	0	0	0	0	0	0	0	0	0	0	0
Tarrant	4,158	3,419	4,168	5,081	6,194	7,550	2,640	2,448	4,168	5,000	5,000	5,000
Wise	3,949	5,653	6,609	7,774	9,195	10,927	1,751	1,245	1,216	1,878	2,042	2,748
Region C Total	71,471	95,640	110,542	128,709	150,855	177,848	40,813	64,625	98,088	107,394	116,058	126,428

Table G.5
Irrigation Demand Projections
(No change from *2006 Region C Plan*)

	Irrigation Demand Projections from the *2006 Region C Plan* (ac-ft)						Irrigation Demand Projections for 2011 Reigon C Plan (ac-ft)					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995
Cooke	444	444	444	444	444	444	444	444	444	444	444	444
Dallas	13,087	13,087	13,087	13,087	13,087	13,087	13,087	13,087	13,087	13,087	13,087	13,087
Denton	2,108	2,108	2,108	2,108	2,108	2,108	2,108	2,108	2,108	2,108	2,108	2,108
Ellis	583	583	583	583	583	583	583	583	583	583	583	583
Fannin	4,608	4,608	4,608	4,608	4,608	4,608	4,608	4,608	4,608	4,608	4,608	4,608
Freestone	8	8	8	8	8	8	8	8	8	8	8	8
Grayson	3,561	3,751	3,950	4,158	4,381	4,616	3,561	3,751	3,950	4,158	4,381	4,616
Henderson	0	0	0	0	0	0	0	0	0	0	0	0
Jack	0	0	0	0	0	0	0	0	0	0	0	0
Kaufman	2,916	2,916	2,916	2,916	2,916	2,916	2,916	2,916	2,916	2,916	2,916	2,916
Navarro	0	0	0	0	0	0	0	0	0	0	0	0
Parker	422	422	422	422	422	422	422	422	422	422	422	422
Rockwall	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125
Tarrant	8,417	8,417	8,417	8,417	8,417	8,417	8,417	8,417	8,417	8,417	8,417	8,417
Wise	502	502	502	502	502	502	502	502	502	502	502	502
Region C Total	40,776	40,966	41,165	41,373	41,596	41,831	40,776	40,966	41,165	41,373	41,596	41,831

Table G.6
Mining Demand Projections

	Mining Demand Projections from the *2006 Region C Plan* (ac-ft)						Mining Demand Projections for 2011 Region C Plan (ac-ft)					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	341	341	341	341	341	341	341	341	341	341	341	341
Cooke	321	334	341	348	355	361	361	484	421	428	435	441
Dallas	2,910	2,910	2,910	2,910	2,910	2,910	2,980	3,040	3,030	3,030	3,030	3,030
Denton	341	341	341	341	341	341	1,571	751	751	751	751	751
Ellis	90	90	90	90	90	90	210	140	140	140	140	140
Fannin	12	12	12	12	12	12	12	12	12	12	12	12
Freestone	116	126	132	138	144	149	116	126	132	138	144	149
Grayson	1,052	1,050	1,049	1,048	1,047	1,046	1,052	1,050	1,049	1,048	1,047	1,046
Henderson	265	302	327	352	378	399	265	302	327	352	378	399
Jack	433	433	433	433	433	433	993	983	973	973	973	973
Kaufman	79	80	81	82	83	84	79	80	81	82	83	84
Navarro	89	89	89	89	89	89	89	89	89	89	89	89
Parker	98	112	122	132	142	150	5,868	1,702	1,692	1,702	1,712	1,720
Rockwall	33	33	33	33	33	33	33	33	33	33	33	33
Tarrant	433	484	519	554	589	616	1,073	904	939	974	1,009	1,036
Wise	23,627	27,824	30,530	33,303	36,168	38,866	26,477	28,924	31,620	34,393	37,258	39,956
Region C Total	30,240	34,561	37,350	40,206	43,155	45,920	41,520	38,961	41,630	44,486	47,435	50,200

Table G.7
Livestock Demand Projections
(No change from *2006 Region C Plan*)

	Livestock Demand Projections from the *2006 Region C Plan* (ac-ft)						Livestock Demand Projections for 2011 Region C Plan (ac-ft)					
County	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Collin	884	884	884	884	884	884	884	884	884	884	884	884
Cooke	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898	1,898
Dallas	482	482	482	482	482	482	482	482	482	482	482	482
Denton	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235
Ellis	1,183	1,183	1,183	1,183	1,183	1,183	1,183	1,183	1,183	1,183	1,183	1,183
Fannin	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Freestone	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528
Grayson	1,297	1,297	1,297	1,297	1,297	1,297	1,297	1,297	1,297	1,297	1,297	1,297
Henderson	854	854	854	854	854	854	854	854	854	854	854	854
Jack	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025
Kaufman	1,545	1,545	1,545	1,545	1,545	1,545	1,545	1,545	1,545	1,545	1,545	1,545
Navarro	1,543	1,543	1,543	1,543	1,543	1,543	1,543	1,543	1,543	1,543	1,543	1,543
Parker	1,856	1,856	1,856	1,856	1,856	1,856	1,856	1,856	1,856	1,856	1,856	1,856
Rockwall	131	131	131	131	131	131	131	131	131	131	131	131
Tarrant	803	803	803	803	803	803	803	803	803	803	803	803
Wise	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714
Region C Total	19,248	19,248	19,248	19,248	19,248	19,248	19,248	19,248	19,248	19,248	19,248	19,248

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
ABLES SPRINGS WSC	KAUFMAN	TRINITY	512	783	976	1,195	1,478	1,828
ADDISON	DALLAS	TRINITY	7,904	10,074	10,919	11,514	11,918	12,218
ALEDO	PARKER	TRINITY	455	957	1,532	2,106	2,213	2,213
ALLEN	COLLIN	TRINITY	20,207	24,699	27,663	27,694	27,694	27,694
ALVORD	WISE	TRINITY	199	214	228	243	263	287
ANNA	COLLIN	TRINITY	1,653	2,948	4,399	5,865	7,541	12,568
ANNETTA	PARKER	TRINITY	218	265	305	339	374	416
ANNETTA SOUTH	PARKER	TRINITY	91	105	116	124	135	147
ARGYLE	DENTON	TRINITY	1,227	2,902	4,217	4,710	5,271	5,827
ARGYLE WSC	DENTON	TRINITY	1,263	1,259	1,239	1,219	1,212	1,212
ARLINGTON	TARRANT	TRINITY	77,597	85,215	89,219	92,537	92,008	92,008
ATHENS	HENDERSON	TRINITY	2,693	3,169	3,739	4,392	5,248	6,306
AUBREY	DENTON	TRINITY	396	855	1,373	1,819	2,445	3,285
AURORA	WISE	TRINITY	187	218	237	253	292	338
AZLE	PARKER	TRINITY	353	438	533	614	708	811
AZLE	TARRANT	TRINITY	1,600	2,195	3,069	4,083	5,141	6,049
BALCH SPRINGS	DALLAS	TRINITY	2,621	2,730	2,805	2,852	2,934	3,028
BARDWELL	ELLIS	TRINITY	103	130	155	182	213	248
BARTONVILLE	DENTON	TRINITY	282	943	1,042	1,042	1,042	1,042
BARTONVILLE WSC	DENTON	TRINITY	307	347	380	410	439	466
BEDFORD	TARRANT	TRINITY	10,138	10,447	10,665	10,808	11,017	11,246
BELLS	GRAYSON	RED	185	271	348	404	456	493
BENBROOK	TARRANT	TRINITY	5,592	6,140	6,721	7,984	9,489	11,254
BETHEL-ASH WSC	HENDERSON	TRINITY	163	194	222	253	290	342
BETHESDA WSC	TARRANT	TRINITY	1,530	1,850	2,182	2,542	2,970	3,501
BLACKLAND WSC	ROCKWALL	SABINE	336	486	585	694	829	988
BLACKLAND WSC	ROCKWALL	TRINITY	143	208	250	296	354	422
BLOOMING GROVE	NAVARRO	TRINITY	161	157	155	152	150	150
BLUE MOUND	TARRANT	TRINITY	297	300	294	286	283	283
BLUE RIDGE	COLLIN	TRINITY	305	627	1,090	1,700	2,473	2,782

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
BOLIVAR WSC	COOKE	TRINITY	205	244	286	285	285	285
BOLIVAR WSC	DENTON	TRINITY	887	1,221	2,782	6,138	9,975	13,504
BOLIVAR WSC	WISE	TRINITY	187	238	303	440	612	918
BONHAM	FANNIN	RED	2,348	2,527	3,172	4,337	5,881	7,253
BOYD	WISE	TRINITY	215	278	339	397	459	459
BRANDON-IRENE WSC	ELLIS	TRINITY	10	11	11	12	13	15
BRANDON-IRENE WSC	NAVARRO	TRINITY	27	28	30	31	33	36
BRIDGEPORT	WISE	TRINITY	1,361	1,899	2,702	3,187	3,713	4,444
BRYSON	JACK	BRAZOS	96	97	96	94	94	94
BUENA VISTA - BETHEL SUD	ELLIS	TRINITY	1,387	1,810	2,311	2,880	3,502	4,180
BURLESON	TARRANT	TRINITY	799	989	1,190	1,397	1,653	1,967
CADDO BASIN SUD	COLLIN	SABINE	415	517	644	774	909	1,054
CADDO BASIN SUD	COLLIN	TRINITY	192	239	298	358	420	487
CARROLLTON	DALLAS	TRINITY	10,804	10,740	10,792	10,783	10,834	10,946
CARROLLTON	DENTON	TRINITY	15,083	15,373	15,980	16,282	16,522	16,686
CASH SUD	ROCKWALL	SABINE	82	111	136	162	194	231
CEDAR HILL	DALLAS	TRINITY	10,093	14,340	16,696	17,270	17,270	17,270
CEDAR HILL	ELLIS	TRINITY	11	11	10	10	10	10
CELINA	COLLIN	TRINITY	1,238	5,562	11,667	20,566	31,454	36,293
CELINA	DENTON	TRINITY	0	672	1,409	2,484	3,799	4,384
CHATFIELD WSC	NAVARRO	TRINITY	428	726	935	1,153	1,378	1,655
CHICO	WISE	TRINITY	208	235	276	333	405	495
COCKRELL HILL	DALLAS	TRINITY	653	687	681	670	667	668
COLLEGE MOUND WSC	KAUFMAN	TRINITY	758	1,155	1,582	1,853	2,187	2,623
COLLEYVILLE	TARRANT	TRINITY	8,123	9,190	9,127	9,096	9,064	9,064
COLLINSVILLE	GRAYSON	TRINITY	324	441	558	666	780	899
COMBINE	DALLAS	TRINITY	100	126	136	148	165	188
COMBINE	KAUFMAN	TRINITY	182	230	269	315	372	447
COMBINE WSC	DALLAS	TRINITY	156	221	250	279	319	373
COMBINE WSC	KAUFMAN	TRINITY	306	467	605	756	949	1,189

Table G.8

Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
COMMUNITY WATER COMPANY	ELLIS	TRINITY	116	171	201	230	264	304
COMMUNITY WATER COMPANY	NAVARRO	TRINITY	106	157	193	237	293	366
COMMUNITY WSC	TARRANT	TRINITY	426	421	416	406	410	419
COMMUNITY WSC	WISE	TRINITY	18	17	17	16	16	16
COPPELL	DALLAS	TRINITY	11,425	11,336	11,246	11,201	11,157	11,157
COPPELL	DENTON	TRINITY	119	164	201	233	260	283
COPPER CANYON	DENTON	TRINITY	357	432	507	582	661	740
CORINTH	DENTON	TRINITY	4,665	5,269	5,679	6,085	6,519	6,845
CORSICANA	NAVARRO	TRINITY	6,200	6,381	6,564	6,763	7,083	7,518
COUNTY-OTHER	FREESTONE	BRAZOS	194	197	196	192	190	190
COUNTY-OTHER	JACK	BRAZOS	173	173	172	167	165	165
COUNTY-OTHER	PARKER	BRAZOS	2,252	2,389	2,703	2,931	2,888	2,867
COUNTY-OTHER	COOKE	RED	237	272	276	272	269	270
COUNTY-OTHER	FANNIN	RED	1,136	1,102	1,056	1,000	950	913
COUNTY-OTHER	GRAYSON	RED	3,029	2,963	2,850	2,634	2,404	2,149
COUNTY-OTHER	COLLIN	SABINE	12	11	10	9	8	7
COUNTY-OTHER	KAUFMAN	SABINE	379	377	374	371	368	368
COUNTY-OTHER	ROCKWALL	SABINE	247	247	247	246	246	246
COUNTY-OTHER	FANNIN	SULPHUR	183	178	170	161	153	147
COUNTY-OTHER	COLLIN	TRINITY	806	732	667	604	546	497
COUNTY-OTHER	COOKE	TRINITY	837	960	975	962	952	952
COUNTY-OTHER	DALLAS	TRINITY	190	146	110	81	60	47
COUNTY-OTHER	DENTON	TRINITY	8,905	11,571	13,262	14,863	16,492	18,169
COUNTY-OTHER	ELLIS	TRINITY	2,015	2,003	1,979	1,967	1,955	1,955
COUNTY-OTHER	FANNIN	TRINITY	177	172	164	156	148	142
COUNTY-OTHER	FREESTONE	TRINITY	1,057	1,074	1,069	1,048	1,039	1,039
COUNTY-OTHER	GRAYSON	TRINITY	439	430	413	382	349	312
COUNTY-OTHER	HENDERSON	TRINITY	262	257	253	248	246	246
COUNTY-OTHER	JACK	TRINITY	376	427	475	519	571	628
COUNTY-OTHER	KAUFMAN	TRINITY	1,703	1,689	1,677	1,665	1,652	1,652

Table G.8

Region C Demand by Water User Group by County By Basin (in Acre-feet[(1)])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
COUNTY-OTHER	NAVARRO	TRINITY	250	244	239	233	229	229
COUNTY-OTHER	PARKER	TRINITY	2,483	2,169	1,888	1,616	1,364	1,129
COUNTY-OTHER	ROCKWALL	TRINITY	138	138	138	137	137	137
COUNTY-OTHER	TARRANT	TRINITY	3,482	3,402	3,348	3,268	3,241	3,241
COUNTY-OTHER	WISE	TRINITY	3,776	4,261	4,221	4,142	4,103	4,103
CRANDALL	KAUFMAN	TRINITY	730	1,004	1,258	1,544	1,909	2,362
CRESSON	PARKER	BRAZOS	28	34	42	51	62	76
CRESSON	PARKER	TRINITY	28	34	41	50	61	75
CROSS ROADS	DENTON	TRINITY	575	1,234	1,230	1,230	1,230	1,230
CROWLEY	TARRANT	TRINITY	1,667	1,977	2,478	3,310	3,976	4,322
CULLEOKA WSC	COLLIN	TRINITY	908	1,350	1,625	1,883	2,185	2,506
DALLAS	COLLIN	TRINITY	16,086	17,766	18,650	19,146	19,449	20,005
DALLAS	DALLAS	TRINITY	351,267	373,694	390,189	414,835	458,576	539,023
DALLAS	DENTON	TRINITY	7,489	7,955	8,134	8,203	8,237	8,270
DALLAS	ROCKWALL	TRINITY	6	6	6	6	6	6
DALWORTHINGTON GARDENS	TARRANT	TRINITY	771	816	847	862	874	884
DANVILLE WSC	COLLIN	TRINITY	845	1,153	1,417	1,693	1,990	2,306
DAWSON	NAVARRO	TRINITY	177	185	195	204	219	238
DE SOTO	DALLAS	TRINITY	10,355	12,375	14,162	15,807	17,741	18,271
DECATUR	WISE	TRINITY	1,639	2,011	2,748	3,537	4,580	5,385
DENISON	GRAYSON	RED	5,489	6,053	6,385	6,493	6,667	6,875
DENTON	DENTON	TRINITY	24,612	34,884	45,594	58,158	71,679	98,275
DENTON COUNTY FWSD #1A	DENTON	TRINITY	991	1,581	2,132	2,704	3,286	3,894
DOUBLE OAK	DENTON	TRINITY	716	706	699	696	692	692
DUNCANVILLE	DALLAS	TRINITY	7,605	7,563	7,522	7,439	7,356	7,356
EAST CEDAR CREEK FWSD	HENDERSON	TRINITY	1,698	1,866	2,215	2,382	2,580	2,777
EAST FORK SUD	COLLIN	TRINITY	1,116	1,252	1,373	1,506	1,643	1,802
EAST FORK SUD	DALLAS	TRINITY	115	118	120	123	126	132
EAST FORK SUD	ROCKWALL	TRINITY	8	8	8	8	8	8
ECTOR	FANNIN	RED	96	99	101	102	104	107

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
EDGECLIFF	TARRANT	TRINITY	460	451	443	434	428	428
ENNIS	ELLIS	TRINITY	3,497	4,358	5,504	6,949	8,834	11,308
EULESS	TARRANT	TRINITY	9,698	10,760	11,158	11,308	11,377	11,448
EUSTACE	HENDERSON	TRINITY	146	143	140	138	137	137
EVERMAN	TARRANT	TRINITY	771	798	776	754	747	747
FAIRFIELD	FREESTONE	TRINITY	829	988	1,146	1,298	1,461	1,588
FAIRVIEW	COLLIN	TRINITY	3,469	3,992	5,012	6,593	6,593	6,593
FARMERS BRANCH	DALLAS	TRINITY	11,229	12,109	12,883	13,603	14,286	14,945
FARMERSVILLE	COLLIN	TRINITY	627	1,176	1,680	2,520	3,696	5,041
FATE	ROCKWALL	SABINE	1,045	1,984	2,471	2,921	3,248	3,473
FATE	ROCKWALL	TRINITY	1,046	1,984	2,472	2,921	3,248	3,472
FERRIS	ELLIS	TRINITY	401	447	495	555	630	700
FILES VALLEY WSC	ELLIS	TRINITY	208	227	247	265	286	309
FLO COMMUNITY WSC	FREESTONE	TRINITY	20	20	20	20	19	19
FLOWER MOUND	DENTON	TRINITY	17,325	23,189	32,085	32,085	32,085	32,085
FOREST HILL	TARRANT	TRINITY	1,492	1,584	1,671	1,776	1,912	2,008
FORNEY	KAUFMAN	TRINITY	2,097	4,033	4,973	5,763	6,422	7,048
FORNEY LAKE WSC	KAUFMAN	TRINITY	771	847	1,048	1,296	1,611	2,014
FORNEY LAKE WSC	ROCKWALL	TRINITY	605	847	1,048	1,296	1,611	2,014
FORT WORTH	DENTON	TRINITY	1,386	8,409	12,810	18,394	25,802	33,069
FORT WORTH	PARKER	TRINITY	3,328	14,576	22,773	26,034	28,518	30,423
FORT WORTH	TARRANT	TRINITY	170,244	194,624	231,781	281,251	340,384	417,660
FORT WORTH	WISE	TRINITY	555	2,803	3,985	5,094	6,518	7,936
FRISCO	COLLIN	TRINITY	23,730	34,735	39,927	48,413	54,480	54,480
FRISCO	DENTON	TRINITY	12,423	13,175	22,523	29,570	34,280	34,280
FROST	NAVARRO	TRINITY	69	67	66	63	63	63
GAINESVILLE	COOKE	RED	2	2	2	2	2	2
GAINESVILLE	COOKE	TRINITY	3,385	3,744	4,169	4,576	5,025	5,520
GARLAND	DALLAS	TRINITY	42,484	42,055	42,789	42,462	42,190	42,190
GASTONIA-SCURRY SUD	KAUFMAN	TRINITY	771	1,104	1,262	1,506	1,840	2,255

Table G.8

Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
GLENN HEIGHTS	DALLAS	TRINITY	1,046	1,189	1,359	1,523	1,670	1,820
GLENN HEIGHTS	ELLIS	TRINITY	361	485	602	724	858	1,014
GRAND PRAIRIE	DALLAS	TRINITY	22,992	25,889	29,848	33,980	38,514	38,514
GRAND PRAIRIE	ELLIS	TRINITY	74	329	809	1,302	1,842	1,842
GRAND PRAIRIE	TARRANT	TRINITY	6,068	7,048	7,769	7,969	7,969	7,969
GRAPEVINE	TARRANT	TRINITY	17,256	18,298	19,827	19,692	19,625	19,625
GUN BARREL CITY	HENDERSON	TRINITY	1,408	1,629	1,840	2,071	2,352	2,720
GUNTER	GRAYSON	TRINITY	271	467	655	837	1,022	1,149
HACKBERRY	DENTON	TRINITY	142	210	275	304	319	326
HALTOM CITY	TARRANT	TRINITY	6,521	7,835	8,142	8,231	8,272	8,324
HASLET	TARRANT	TRINITY	784	1,555	2,697	2,689	2,682	2,682
HEATH	ROCKWALL	TRINITY	1,952	2,727	3,393	4,116	4,964	5,980
HEBRON	DENTON	TRINITY	114	111	110	109	109	109
HICKORY CREEK	DENTON	TRINITY	753	1,004	1,158	1,405	1,405	1,405
HICKORY CREEK SUD	FANNIN	SULPHUR	17	18	19	19	20	21
HICKORY CREEK SUD	COLLIN	TRINITY	12	16	19	22	25	29
HICKORY CREEK SUD	FANNIN	TRINITY	13	14	15	15	16	17
HIGH POINT WSC	KAUFMAN	TRINITY	330	467	555	655	778	939
HIGH POINT WSC	ROCKWALL	TRINITY	32	50	61	73	87	105
HIGHLAND PARK	DALLAS	TRINITY	4,255	4,266	4,274	4,278	4,289	4,319
HIGHLAND VILLAGE	DENTON	TRINITY	3,733	4,100	4,302	4,295	4,274	4,274
HONEY GROVE	FANNIN	RED	102	113	132	156	181	207
HONEY GROVE	FANNIN	SULPHUR	319	353	414	489	568	649
HOWE	GRAYSON	RED	72	75	83	95	98	99
HOWE	GRAYSON	TRINITY	331	515	754	990	1,139	1,266
HUDSON OAKS	PARKER	TRINITY	394	475	576	674	771	867
HURST	TARRANT	TRINITY	7,524	7,807	7,670	7,532	7,486	7,486
HUTCHINS	DALLAS	TRINITY	821	1,008	1,255	1,624	2,123	3,497
IRRIGATION	FREESTONE	BRAZOS	2	2	2	2	2	2
IRRIGATION	PARKER	BRAZOS	408	408	408	408	408	408

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
IRRIGATION	COOKE	RED	288	288	288	288	288	288
IRRIGATION	FANNIN	RED	4,608	4,608	4,608	4,608	4,608	4,608
IRRIGATION	GRAYSON	RED	420	443	466	491	517	545
IRRIGATION	COLLIN	TRINITY	2,995	2,995	2,995	2,995	2,995	2,995
IRRIGATION	COOKE	TRINITY	156	156	156	156	156	156
IRRIGATION	DALLAS	TRINITY	13,087	13,087	13,087	13,087	13,087	13,087
IRRIGATION	DENTON	TRINITY	2,108	2,108	2,108	2,108	2,108	2,108
IRRIGATION	ELLIS	TRINITY	583	583	583	583	583	583
IRRIGATION	FREESTONE	TRINITY	6	6	6	6	6	6
IRRIGATION	GRAYSON	TRINITY	3,141	3,308	3,484	3,667	3,864	4,071
IRRIGATION	KAUFMAN	TRINITY	2,916	2,916	2,916	2,916	2,916	2,916
IRRIGATION	PARKER	TRINITY	14	14	14	14	14	14
IRRIGATION	ROCKWALL	TRINITY	1,125	1,125	1,125	1,125	1,125	1,125
IRRIGATION	TARRANT	TRINITY	8,417	8,417	8,417	8,417	8,417	8,417
IRRIGATION	WISE	TRINITY	502	502	502	502	502	502
IRVING	DALLAS	TRINITY	58,202	66,967	70,502	73,780	76,256	78,126
ITALY	ELLIS	TRINITY	282	330	362	397	439	489
JACKSBORO	JACK	TRINITY	688	699	697	686	680	680
JOHNSON COUNTY SUD	ELLIS	TRINITY	42	55	69	86	104	122
JOHNSON COUNTY SUD	TARRANT	TRINITY	419	532	656	799	976	1,154
JOSEPHINE	COLLIN	TRINITY	256	343	411	495	574	660
JUSTIN	DENTON	TRINITY	587	1,012	1,614	2,636	3,218	3,551
KAUFMAN	KAUFMAN	TRINITY	1,322	1,716	2,013	2,264	2,511	3,029
KELLER	TARRANT	TRINITY	9,124	10,138	11,495	11,380	11,380	11,380
KEMP	KAUFMAN	TRINITY	224	267	307	300	296	296
KENNEDALE	TARRANT	TRINITY	1,255	1,594	1,756	1,867	1,937	1,992
KERENS	NAVARRO	TRINITY	460	453	447	440	436	436
KIOWA HOMEOWNERS WSC	COOKE	TRINITY	875	931	955	952	948	947
KRUGERVILLE	DENTON	TRINITY	204	228	257	331	428	613
KRUM	DENTON	TRINITY	640	721	773	838	945	1,066

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
LADONIA	FANNIN	SULPHUR	291	577	715	779	879	1,055
LAKE DALLAS	DENTON	TRINITY	1,354	1,580	1,702	1,691	1,680	1,680
LAKE WORTH	TARRANT	TRINITY	930	1,010	1,102	1,190	1,290	1,344
LAKESIDE	TARRANT	TRINITY	447	512	580	652	740	846
LANCASTER	DALLAS	TRINITY	5,704	8,755	9,436	9,363	9,363	9,363
LAVON WSC	COLLIN	TRINITY	293	873	1,276	1,855	2,637	3,596
LAVON WSC	ROCKWALL	TRINITY	266	873	1,138	1,142	1,159	1,419
LEONARD	FANNIN	SULPHUR	5	5	9	14	21	26
LEONARD	FANNIN	TRINITY	298	337	457	706	1,019	1,273
LEWISVILLE	DALLAS	TRINITY	1	1	1	1	1	1
LEWISVILLE	DENTON	TRINITY	19,262	21,316	23,505	26,050	29,516	33,612
LINCOLN PARK	DENTON	TRINITY	102	132	155	178	202	234
LINDSAY	COOKE	TRINITY	154	161	164	162	160	160
LITTLE ELM	DENTON	TRINITY	4,731	6,061	7,348	8,321	8,321	8,321
LIVESTOCK	FREESTONE	BRAZOS	122	122	122	122	122	122
LIVESTOCK	JACK	BRAZOS	277	277	277	277	277	277
LIVESTOCK	PARKER	BRAZOS	872	872	872	872	872	872
LIVESTOCK	COOKE	RED	608	608	608	608	608	608
LIVESTOCK	FANNIN	RED	914	914	914	914	914	914
LIVESTOCK	GRAYSON	RED	830	830	830	830	830	830
LIVESTOCK	COLLIN	SABINE	27	27	27	27	27	27
LIVESTOCK	KAUFMAN	SABINE	93	93	93	93	93	93
LIVESTOCK	ROCKWALL	SABINE	25	25	25	25	25	25
LIVESTOCK	FANNIN	SULPHUR	292	292	292	292	292	292
LIVESTOCK	COLLIN	TRINITY	857	857	857	857	857	857
LIVESTOCK	COOKE	TRINITY	1,290	1,290	1,290	1,290	1,290	1,290
LIVESTOCK	DALLAS	TRINITY	482	482	482	482	482	482
LIVESTOCK	DENTON	TRINITY	1,235	1,235	1,235	1,235	1,235	1,235
LIVESTOCK	ELLIS	TRINITY	1,183	1,183	1,183	1,183	1,183	1,183
LIVESTOCK	FANNIN	TRINITY	64	64	64	64	64	64

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
LIVESTOCK	FREESTONE	TRINITY	1,406	1,406	1,406	1,406	1,406	1,406
LIVESTOCK	GRAYSON	TRINITY	467	467	467	467	467	467
LIVESTOCK	HENDERSON	TRINITY	854	854	854	854	854	854
LIVESTOCK	JACK	TRINITY	748	748	748	748	748	748
LIVESTOCK	KAUFMAN	TRINITY	1,452	1,452	1,452	1,452	1,452	1,452
LIVESTOCK	NAVARRO	TRINITY	1,543	1,543	1,543	1,543	1,543	1,543
LIVESTOCK	PARKER	TRINITY	984	984	984	984	984	984
LIVESTOCK	ROCKWALL	TRINITY	106	106	106	106	106	106
LIVESTOCK	TARRANT	TRINITY	803	803	803	803	803	803
LIVESTOCK	WISE	TRINITY	1,714	1,714	1,714	1,714	1,714	1,714
LOG CABIN	HENDERSON	TRINITY	96	128	144	142	141	141
LOWRY CROSSING	COLLIN	TRINITY	366	458	541	554	551	551
LUCAS	COLLIN	TRINITY	1,032	1,533	1,828	2,344	3,327	4,537
LUELLA WSC	GRAYSON	TRINITY	410	460	511	582	592	672
M E N WSC	NAVARRO	TRINITY	441	471	510	542	571	621
MABANK	HENDERSON	TRINITY	95	109	123	140	159	184
MABANK	KAUFMAN	TRINITY	576	692	808	943	1,110	1,323
MACBEE SUD	KAUFMAN	SABINE	36	45	54	65	78	94
MALAKOFF	HENDERSON	TRINITY	348	361	372	383	404	434
MANSFIELD	ELLIS	TRINITY	237	475	950	1,662	2,375	2,850
MANSFIELD	TARRANT	TRINITY	13,230	18,373	23,359	27,550	30,493	33,673
MANUFACTURING	JACK	BRAZOS	2	2	2	2	2	2
MANUFACTURING	PARKER	BRAZOS	231	261	289	317	341	370
MANUFACTURING	FANNIN	RED	73	82	90	98	105	114
MANUFACTURING	GRAYSON	RED	7,008	7,779	8,451	9,086	9,619	10,442
MANUFACTURING	ROCKWALL	SABINE	8	9	10	12	13	14
MANUFACTURING	COLLIN	TRINITY	3,607	4,137	4,654	5,170	5,633	6,115
MANUFACTURING	COOKE	TRINITY	273	306	335	364	389	421
MANUFACTURING	DALLAS	TRINITY	34,115	37,791	41,148	44,214	46,703	46,983
MANUFACTURING	DENTON	TRINITY	1,068	1,239	1,408	1,579	1,731	1,880

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
MANUFACTURING	ELLIS	TRINITY	3,466	3,670	3,841	3,987	4,089	3,912
MANUFACTURING	GRAYSON	TRINITY	2	2	2	2	2	2
MANUFACTURING	HENDERSON	TRINITY	110	118	133	151	172	195
MANUFACTURING	KAUFMAN	TRINITY	760	813	869	928	993	1,061
MANUFACTURING	NAVARRO	TRINITY	1,172	1,328	1,468	1,607	1,730	1,872
MANUFACTURING	PARKER	TRINITY	548	618	685	751	809	878
MANUFACTURING	ROCKWALL	TRINITY	12	14	16	17	19	21
MANUFACTURING	TARRANT	TRINITY	17,258	20,444	23,630	26,924	29,919	32,457
MANUFACTURING	WISE	TRINITY	2,313	2,660	2,979	3,277	3,539	3,858
MARILEE SUD	COLLIN	TRINITY	450	645	837	997	1,173	1,360
MARILEE SUD	GRAYSON	TRINITY	80	129	190	259	412	588
MAYPEARL	ELLIS	TRINITY	195	238	282	276	272	272
MCKINNEY	COLLIN	TRINITY	34,366	53,767	73,929	94,092	102,157	102,157
MCLENDON-CHISHOLM	ROCKWALL	TRINITY	272	296	320	347	396	467
MELISSA	COLLIN	TRINITY	807	4,972	7,527	10,753	15,055	16,570
MESQUITE	DALLAS	TRINITY	26,245	30,311	33,873	34,468	34,520	34,530
MESQUITE	KAUFMAN	TRINITY	0	1	1	1	1	2
MIDLOTHIAN	ELLIS	TRINITY	3,438	6,765	9,174	11,151	13,178	15,206
MILFORD	ELLIS	TRINITY	132	130	127	125	122	122
MILLIGAN WSC	COLLIN	TRINITY	202	196	191	185	183	183
MINERAL WELLS	PARKER	BRAZOS	766	753	744	730	726	726
MINING	FREESTONE	BRAZOS	13	14	15	16	16	17
MINING	JACK	BRAZOS	7	7	7	7	7	7
MINING	PARKER	BRAZOS	5,628	1,641	1,623	1,638	1,640	1,651
MINING	COOKE	RED	147	197	172	175	178	180
MINING	FANNIN	RED	12	12	12	12	12	12
MINING	GRAYSON	RED	383	382	382	381	381	381
MINING	ROCKWALL	SABINE	33	33	33	33	33	33
MINING	COLLIN	TRINITY	341	341	341	341	341	341
MINING	COOKE	TRINITY	214	287	249	253	257	261

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
MINING	DALLAS	TRINITY	2,980	3,040	3,030	3,030	3,030	3,030
MINING	DENTON	TRINITY	1,571	751	751	751	751	751
MINING	ELLIS	TRINITY	210	140	140	140	140	140
MINING	FREESTONE	TRINITY	103	112	117	122	128	132
MINING	GRAYSON	TRINITY	669	668	667	667	666	665
MINING	HENDERSON	TRINITY	265	302	327	352	378	399
MINING	JACK	TRINITY	986	976	966	966	966	966
MINING	KAUFMAN	TRINITY	79	80	81	82	83	84
MINING	NAVARRO	TRINITY	89	89	89	89	89	89
MINING	PARKER	TRINITY	240	61	69	64	72	69
MINING	TARRANT	TRINITY	1,073	904	939	974	1,009	1,036
MINING	WISE	TRINITY	26,477	28,924	31,620	34,393	37,258	39,956
MOUNTAIN PEAK SUD	ELLIS	TRINITY	1,207	1,337	1,409	1,607	1,975	2,452
MT ZION WSC	ROCKWALL	TRINITY	442	436	430	425	421	421
MUENSTER	COOKE	TRINITY	339	351	366	379	395	414
MURPHY	COLLIN	TRINITY	4,234	8,556	8,556	8,556	8,556	8,556
MUSTANG SUD	DENTON	TRINITY	921	1,474	1,939	3,623	5,323	6,949
NAVARRO MILLS WSC	NAVARRO	TRINITY	329	442	500	577	663	754
NEVADA	COLLIN	SABINE	177	352	421	836	1,393	3,484
NEVADA	COLLIN	TRINITY	70	176	210	418	697	1,742
NEW FAIRVIEW	WISE	TRINITY	201	272	340	409	488	579
NEW HOPE	COLLIN	TRINITY	267	383	632	944	1,416	3,148
NEWARK	WISE	TRINITY	154	232	301	418	564	787
NORTH COLLIN WSC	COLLIN	TRINITY	876	1,116	1,321	1,525	1,757	2,005
NORTH HUNT WSC	FANNIN	SULPHUR	49	55	60	63	66	70
NORTH RICHLAND HILLS	TARRANT	TRINITY	12,496	13,832	14,753	15,300	15,693	16,022
NORTHLAKE	DENTON	TRINITY	268	808	934	1,796	2,658	3,197
OAK GROVE	KAUFMAN	TRINITY	124	148	172	201	236	283
OAK LEAF	ELLIS	TRINITY	338	393	448	503	567	640
OAK POINT	DENTON	TRINITY	585	1,377	2,067	2,318	2,585	2,868

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
OVILLA	DALLAS	TRINITY	68	116	182	293	429	630
OVILLA	ELLIS	TRINITY	924	1,434	1,917	2,355	2,355	2,355
PALMER	ELLIS	TRINITY	271	282	293	303	320	342
PANTEGO	TARRANT	TRINITY	701	693	685	685	672	672
PARADISE	WISE	TRINITY	73	89	109	134	165	202
PARKER	COLLIN	TRINITY	1,494	4,078	5,950	9,669	14,132	19,338
PAYNE SPRINGS	HENDERSON	TRINITY	165	174	182	191	203	220
PECAN HILL	ELLIS	TRINITY	160	183	205	228	254	285
PELICAN BAY	TARRANT	TRINITY	166	214	268	290	320	359
PILOT POINT	DENTON	TRINITY	763	1,124	1,895	2,069	2,195	2,335
PLANO	COLLIN	TRINITY	73,602	74,618	75,125	75,386	75,642	75,921
PLANO	DENTON	TRINITY	1,606	2,210	2,193	2,184	2,176	2,176
PONDER	DENTON	TRINITY	250	913	1,815	2,903	3,357	3,448
POST OAK BEND CITY	KAUFMAN	TRINITY	85	138	226	369	602	982
POTTSBORO	GRAYSON	RED	504	851	1,176	1,492	1,811	1,976
PRINCETON	COLLIN	TRINITY	1,329	2,657	3,871	6,452	10,753	16,130
PROSPER	COLLIN	TRINITY	1,998	3,239	5,669	7,829	12,688	13,498
PROSPER	DENTON	TRINITY	0	2,160	3,779	5,669	6,209	6,749
R-C-H WSC	ROCKWALL	TRINITY	642	911	919	918	912	912
RED OAK	ELLIS	TRINITY	2,366	4,022	4,922	5,269	5,612	5,986
RENO	PARKER	TRINITY	319	321	322	321	327	337
RHOME	WISE	TRINITY	590	955	1,541	2,151	2,760	3,369
RICE	NAVARRO	TRINITY	229	265	304	347	398	463
RICE WSC	ELLIS	TRINITY	127	165	204	242	288	338
RICE WSC	NAVARRO	TRINITY	818	1,002	1,205	1,408	1,678	2,009
RICHARDSON	COLLIN	TRINITY	6,925	10,588	10,550	10,435	10,359	10,359
RICHARDSON	DALLAS	TRINITY	25,458	25,535	25,443	25,167	24,984	24,984
RICHLAND HILLS	TARRANT	TRINITY	1,327	1,381	1,441	1,511	1,558	1,580
RIVER OAKS	TARRANT	TRINITY	1,010	986	954	931	923	923
ROANOKE	DENTON	TRINITY	1,756	2,732	3,538	4,348	5,787	7,013

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
ROCKETT SUD	DALLAS	TRINITY	326	399	439	481	536	616
ROCKETT SUD	ELLIS	TRINITY	4,387	5,586	6,997	8,155	8,704	8,704
ROCKWALL	ROCKWALL	TRINITY	9,855	17,597	21,596	25,162	25,826	25,826
ROWLETT	DALLAS	TRINITY	10,129	12,242	13,964	15,326	16,301	17,236
ROWLETT	ROCKWALL	TRINITY	1,490	1,489	1,483	1,475	1,458	1,458
ROYSE CITY	COLLIN	SABINE	286	858	1,676	2,514	3,351	4,307
ROYSE CITY	ROCKWALL	SABINE	2,215	3,564	4,283	5,275	6,210	7,214
RUNAWAY BAY	WISE	TRINITY	296	356	430	489	547	608
SACHSE	COLLIN	TRINITY	1,055	1,384	1,376	1,362	1,362	1,362
SACHSE	DALLAS	TRINITY	3,344	3,740	4,430	4,384	4,384	4,384
SAGINAW	TARRANT	TRINITY	3,161	3,755	4,176	4,489	4,705	4,885
SAINT PAUL	COLLIN	TRINITY	192	468	930	1,479	1,756	1,848
SANCTUARY	PARKER	TRINITY	92	216	314	370	426	478
SANGER	DENTON	TRINITY	1,302	2,114	2,935	3,476	3,871	4,033
SANSOM PARK VILLAGE	TARRANT	TRINITY	603	609	609	605	608	615
SARDIS-LONE ELM WSC	DALLAS	TRINITY	8	7	7	7	7	7
SARDIS-LONE ELM WSC	ELLIS	TRINITY	2,500	3,298	4,077	4,033	4,010	4,010
SAVOY	FANNIN	RED	108	108	106	105	107	109
SCURRY	KAUFMAN	TRINITY	87	102	118	138	160	186
SEAGOVILLE	DALLAS	TRINITY	2,082	2,538	3,014	3,473	3,881	4,180
SEAGOVILLE	KAUFMAN	TRINITY	3	4	5	7	9	11
SEVEN POINTS	HENDERSON	TRINITY	188	222	254	288	330	385
SHADY SHORES	DENTON	TRINITY	357	510	613	608	604	604
SHERMAN	GRAYSON	RED	10,081	11,240	12,696	14,348	16,586	19,804
SOUTH GRAYSON WSC	COLLIN	TRINITY	212	215	219	220	222	225
SOUTH GRAYSON WSC	GRAYSON	TRINITY	169	264	342	434	538	672
SOUTHLAKE	DENTON	TRINITY	262	451	529	825	1,215	1,306
SOUTHLAKE	TARRANT	TRINITY	9,059	9,375	9,420	9,689	10,044	10,549
SOUTHMAYD	GRAYSON	RED	160	197	258	380	565	703
SOUTHWEST FANNIN COUNTY SUD	FANNIN	RED	677	987	1,135	1,231	1,314	1,408

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
SOUTHWEST FANNIN COUNTY SUD	GRAYSON	RED	38	46	47	46	46	46
SOUTHWEST FANNIN COUNTY SUD	FANNIN	TRINITY	7	9	10	11	11	12
SPRINGTOWN	PARKER	TRINITY	504	659	807	961	1,113	1,272
STEAM ELECTRIC POWER	FANNIN	RED	1,261	6,363	11,474	11,910	12,443	13,092
STEAM ELECTRIC POWER	GRAYSON	RED	3,360	5,378	7,396	7,396	7,396	7,396
STEAM ELECTRIC POWER	COLLIN	TRINITY	771	715	1,000	1,200	1,600	2,000
STEAM ELECTRIC POWER	DALLAS	TRINITY	3,367	4,290	11,918	12,000	12,000	12,000
STEAM ELECTRIC POWER	DENTON	TRINITY	644	744	844	944	1,044	1,144
STEAM ELECTRIC POWER	ELLIS	TRINITY	981	698	1,450	3,741	5,754	7,878
STEAM ELECTRIC POWER	FREESTONE	TRINITY	12,173	18,210	20,524	23,999	28,234	33,398
STEAM ELECTRIC POWER	GRAYSON	TRINITY	2,240	3,585	4,930	4,930	4,930	4,930
STEAM ELECTRIC POWER	HENDERSON	TRINITY	460	427	7,000	8,000	9,000	10,000
STEAM ELECTRIC POWER	JACK	TRINITY	2,162	2,500	2,700	2,900	3,100	3,300
STEAM ELECTRIC POWER	KAUFMAN	TRINITY	8,979	10,000	10,000	10,000	10,000	10,000
STEAM ELECTRIC POWER	NAVARRO	TRINITY	0	8,000	13,440	13,440	13,440	13,440
STEAM ELECTRIC POWER	PARKER	TRINITY	24	22	28	56	75	102
STEAM ELECTRIC POWER	TARRANT	TRINITY	2,640	2,448	4,168	5,000	5,000	5,000
STEAM ELECTRIC POWER	WISE	TRINITY	1,751	1,245	1,216	1,878	2,042	2,748
SUNNYVALE	DALLAS	TRINITY	1,770	2,454	3,135	3,820	4,514	4,618
TALTY	KAUFMAN	TRINITY	813	1,717	2,337	3,024	3,878	4,948
TEAGUE	FREESTONE	BRAZOS	209	281	301	327	353	383
TEAGUE	FREESTONE	TRINITY	327	439	472	512	553	599
TERRELL	KAUFMAN	TRINITY	3,807	10,385	14,780	19,138	21,731	24,643
THE COLONY	DENTON	TRINITY	5,761	7,778	8,609	8,810	9,006	9,087
TIOGA	GRAYSON	TRINITY	192	428	588	663	725	757
TOM BEAN	GRAYSON	RED	39	45	51	57	64	67
TOM BEAN	GRAYSON	TRINITY	220	256	292	326	362	381
TOOL	HENDERSON	TRINITY	405	452	500	548	610	695
TRENTON	FANNIN	TRINITY	206	302	496	780	1,163	1,550
TRINIDAD	HENDERSON	TRINITY	183	183	183	181	184	190

Table G.8
Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
TROPHY CLUB	DENTON	TRINITY	2,847	3,190	3,477	3,732	4,019	4,306
TWO WAY SUD	COOKE	RED	10	11	11	11	11	11
TWO WAY SUD	GRAYSON	RED	366	519	629	744	855	973
TWO WAY SUD	GRAYSON	TRINITY	199	283	339	400	460	524
UNIVERSITY PARK	DALLAS	TRINITY	7,799	7,896	7,940	7,946	7,983	8,030
VALLEY VIEW	COOKE	TRINITY	187	363	594	808	1,371	1,714
VAN ALSTYNE	GRAYSON	TRINITY	504	1,411	2,510	3,142	3,419	3,549
VIRGINIA HILL WSC	HENDERSON	TRINITY	393	384	375	366	361	364
WALNUT CREEK SUD	PARKER	TRINITY	2,310	3,355	5,215	6,407	6,757	6,990
WALNUT CREEK SUD	WISE	TRINITY	296	439	680	815	874	932
WATAUGA	TARRANT	TRINITY	3,437	3,532	3,500	3,416	3,388	3,388
WAXAHACHIE	ELLIS	TRINITY	6,855	8,781	10,330	13,090	16,672	21,341
WEATHERFORD	PARKER	BRAZOS	251	302	361	418	479	547
WEATHERFORD	PARKER	TRINITY	5,258	6,315	7,246	8,136	9,082	10,194
WEST CEDAR CREEK MUD	HENDERSON	TRINITY	1,010	1,423	1,735	1,994	2,329	2,753
WEST CEDAR CREEK MUD	KAUFMAN	TRINITY	714	1,181	1,600	2,008	2,531	3,180
WEST WISE RURAL SUD	WISE	TRINITY	483	524	567	618	681	756
WESTON	COLLIN	TRINITY	251	672	1,482	4,234	7,410	12,702
WESTOVER HILLS	TARRANT	TRINITY	276	274	272	270	268	268
WESTWORTH VILLAGE	TARRANT	TRINITY	350	412	426	442	470	519
WHITE SETTLEMENT	TARRANT	TRINITY	2,531	2,647	2,742	2,831	3,031	3,253
WHITESBORO	GRAYSON	RED	436	544	642	740	863	1,157
WHITESBORO	GRAYSON	TRINITY	328	307	316	330	364	478
WHITEWRIGHT	FANNIN	RED	4	5	6	7	7	8
WHITEWRIGHT	GRAYSON	RED	399	627	867	1,041	1,223	1,411
WILLOW PARK	PARKER	TRINITY	681	934	1,298	1,557	1,731	1,855
WILMER	DALLAS	TRINITY	443	527	612	874	1,631	2,563
WOODBINE WSC	COOKE	RED	13	14	14	13	13	13
WOODBINE WSC	COOKE	TRINITY	643	685	735	776	829	889
WOODBINE WSC	GRAYSON	TRINITY	13	13	13	13	13	13

Table G.8

Region C Demand by Water User Group by County By Basin (in Acre-feet[1])

WUG Name	County	Basin	2010	2020	2030	2040	2050	2060
WORTHAM	FREESTONE	TRINITY	272	321	369	414	453	495
WYLIE	COLLIN	TRINITY	6,553	8,378	10,138	12,052	12,052	12,052
WYLIE	DALLAS	TRINITY	121	151	176	209	209	209
WYLIE	ROCKWALL	TRINITY	136	208	272	340	340	340
TOTAL			1,761,353	2,078,744	2,377,738	2,655,102	2,942,321	3,272,461

(1) An acft is an amount of water to cover one acre with one foot of water and equals 325,851 gallons.

APPENDIX H
DEMAND PROJECTIONS FOR WHOLESALE WATER PROVIDERS

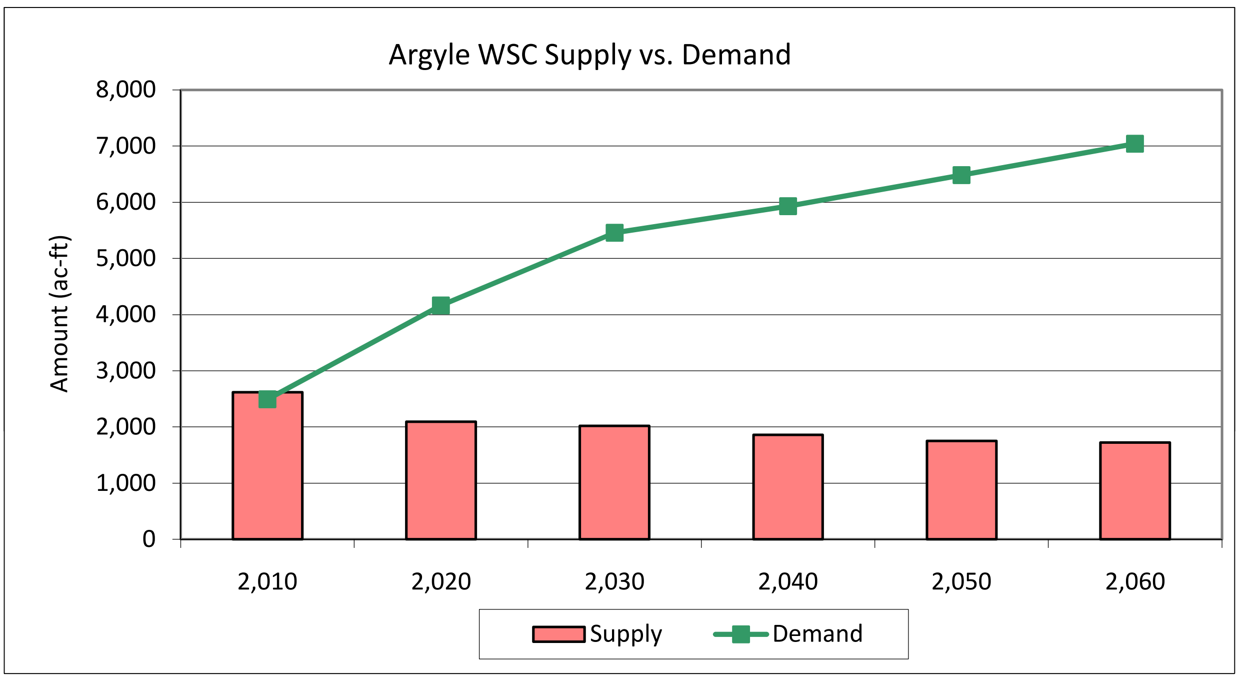
Argyle WSC

-Values in Acre-Feet per Year-

WUG Demands on Argyle Water Supply Corporation						
WUG	**2,010**	**2,020**	**2,030**	**2,040**	**2,050**	**2,060**
Argyle WSC	1,263	1,259	1,239	1,219	1,212	1,212
Argyle	1,227	2,902	4,217	4,710	5,271	5,827
Total	**2,490**	**4,161**	**5,456**	**5,929**	**6,483**	**7,039**

Current Supply	**2,010**	**2,020**	**2,030**	**2,040**	**2,050**	**2,060**
Groundwater	841	841	841	841	841	841
Currently Available from UTRWD	1,779	1,251	1,179	1,017	911	882
Total	**2,620**	**2,092**	**2,020**	**1,858**	**1,752**	**1,723**

Supplies Less Current Demands	**130**	**-2,069**	**-3,436**	**-4,071**	**-4,731**	**-5,316**



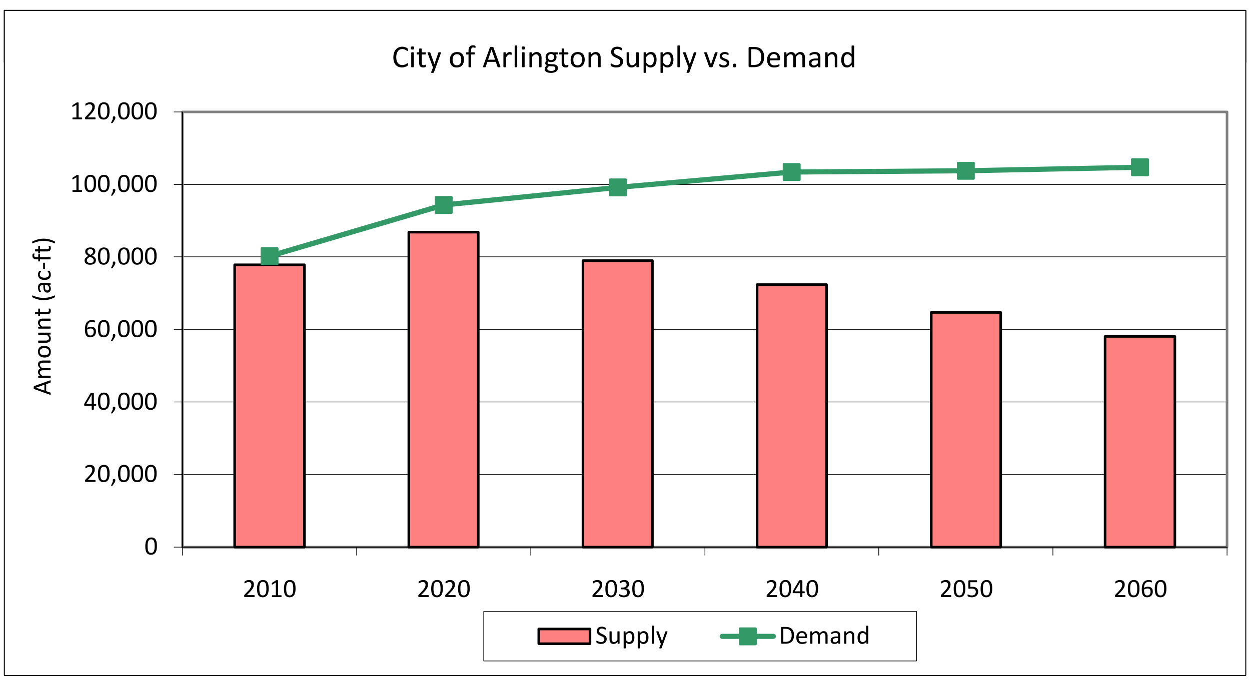
City of Arlington

-Values in Acre-Feet per Year-

WUG Demands on City of Arlington						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Arlington Municipal	77,597	85,215	89,219	92,537	92,008	92,008
15% of Tarrant County Manufacturing[a]	2,589	3,067	3,545	4,039	4,488	4,869
Grand Prairie (Future)	0	4,484	4,484	4,484	4,484	4,484
Bethesda WSC (Future)	0	1,489	1,833	2,214	2,678	3,266
Pantego (Future)	0	100	100	100	100	100
Total	**80,186**	**94,355**	**99,181**	**103,374**	**103,758**	**104,727**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Arlington (TRWD)	9,850	9,700	9,550	9,400	9,250	9,100
TRWD	68,006	77,114	69,406	62,992	55,473	48,949
Limit of Current Plant Capacity (75 mgd PB South; 97.5 mgd John F. Kubala WTP)	96,686	96,686	96,686	96,686	96,686	96,686
Total	**77,856**	**86,814**	**78,956**	**72,392**	**64,723**	**58,049**

Supplies Less Current & Potential Demands	**-2,330**	**-7,541**	**-20,225**	**-30,982**	**-39,035**	**-46,678**



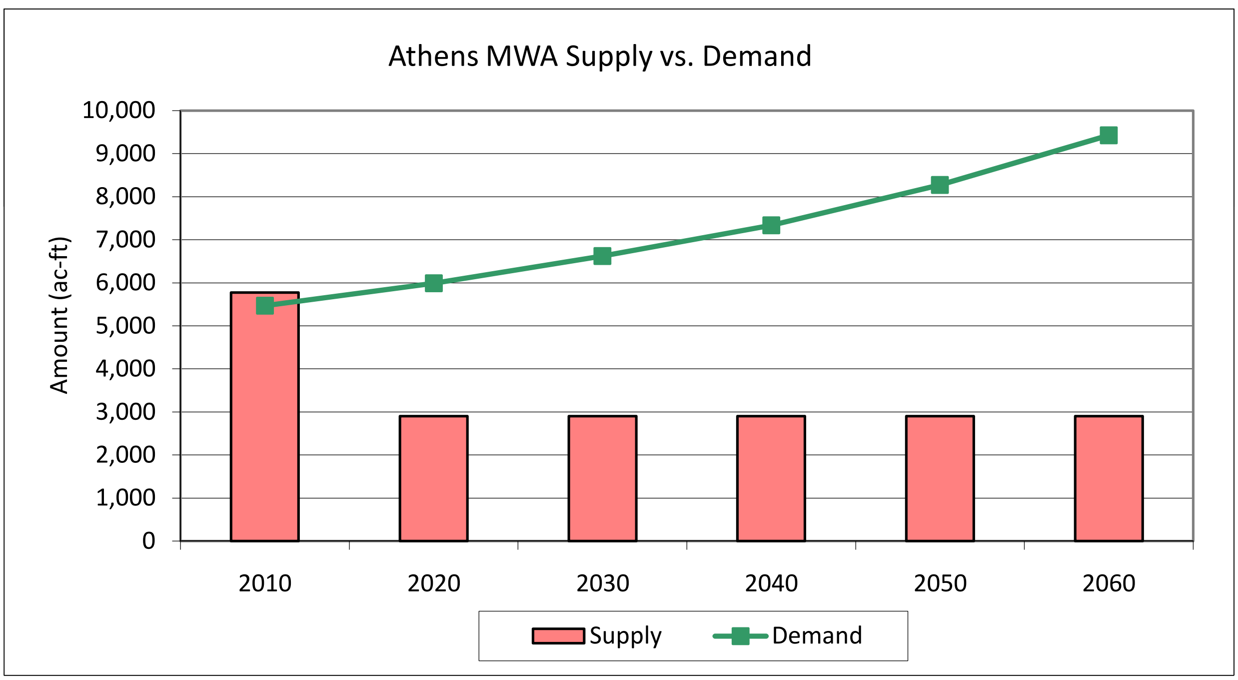
Athens MWA

-Values in Acre-Feet per Year-

WUG Demands on Athens MWA						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Athens[a]	2,184	2,697	3,310	4,006	4,917	6,043
Lawn Irrigation (Henderson Co. Irrigation - Region I)	159	164	169	174	179	185
Henderson County Livestock (TPWD Fish Hatchery)	3,023	3,023	3,023	3,023	3,023	3,023
Henderson County Manufacturing (90% - Reg C)	100	106	120	136	155	176
Total	**5,466**	**5,990**	**6,622**	**7,339**	**8,274**	**9,427**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Athens (Operational Yield)	2,900	2,900	2,900	2,900	2,900	2,900
Fish Hatchery Return Flows	2,872	0	0	0	0	0
Total	**5,772**	**2,900**	**2,900**	**2,900**	**2,900**	**2,900**

Supplies Less Current Demands	**306**	**-3,090**	**-3,722**	**-4,439**	**-5,374**	**-6,527**



Bartonville WSC

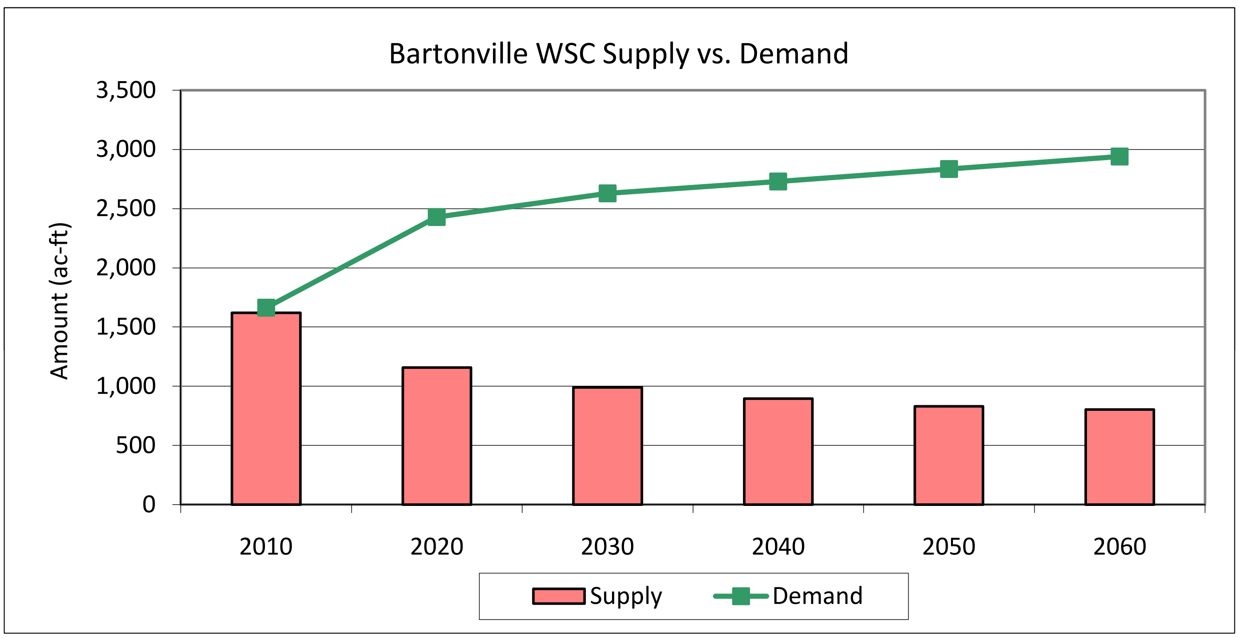
-Values in Acre-Feet per Year-

WUG Demands on Bartonville Water Supply Corporation

WUG	2010	2020	2030	2040	2050	2060
Bartonville WSC	307	347	380	410	439	466
Bartonville	282	943	1,042	1,042	1,042	1,042
Copper Canyon	357	432	507	582	661	740
Double Oak	716	706	699	696	692	692
Total	**1,662**	**2,428**	**2,628**	**2,730**	**2,834**	**2,940**

Current Supply	2010	2020	2030	2040	2050	2060
Groundwater	449	449	449	449	449	449
Currently Available from UTRWD	1,170	708	540	447	381	355
Total	**1,619**	**1,157**	**989**	**896**	**830**	**804**

Supplies Less Current Demands	**-43**	**-1,271**	**-1,639**	**-1,834**	**-2,004**	**-2,136**



Bolivar WSC

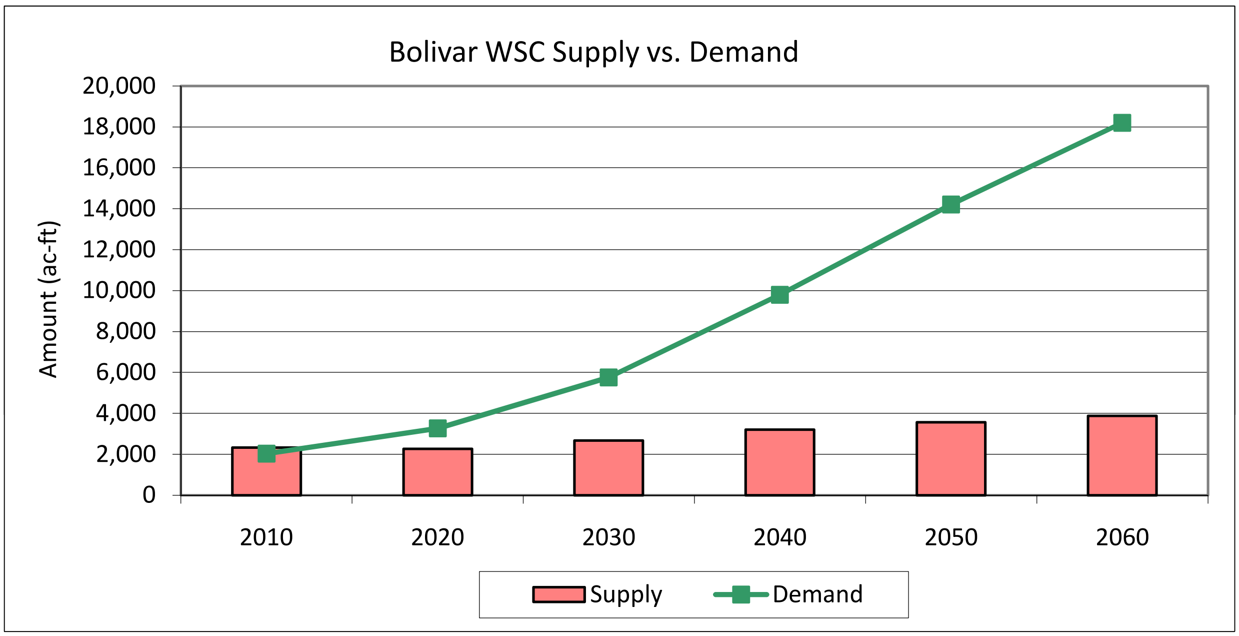
-Values in Acre-Feet per Year-

WUG Demands on Bolivar Water Supply Corporation						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Bolivar WSC	1,279	1,703	3,371	6,863	10,872	14,707
Sanger[a]	759	1,571	2,392	2,933	3,328	3,490
Total	**2,038**	**3,274**	**5,763**	**9,796**	**14,200**	**18,197**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Groundwater	1,548	1,548	1,548	1,548	1,548	1,548
UTRWD	773	720	1,120	1,660	2,023	2,328
Total	**2,321**	**2,268**	**2,668**	**3,208**	**3,571**	**3,876**

Supplies Less Current Demands	**283**	**-1,006**	**-3,095**	**-6,588**	**-10,629**	**-14,321**

[a] Supplies from other sources



City of Corsicana

-Values in Acre-Feet per Year-

WUG Demands on Corsicana						
WUGs	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Corsicana Municipal	6,200	6,381	6,564	6,763	7,083	7,518
Blooming Grove	161	157	155	152	150	150
Chatfield WSC	428	726	935	1,153	1,378	1,655
Community WC (Navarro County)	106	157	193	237	293	366
Coolidge (through Post Oak SUD - Region G)	37	37	37	37	37	37
Dawson	177	185	195	204	219	238
Freestone County Other	0	225	225	225	225	225
Frost	69	67	66	63	63	63
Hill County-Other (Region G)	353	353	353	353	353	353
Hubbard (Region G)	194	188	183	177	173	173
Kerens	460	453	447	440	436	436
MEN WSC	441	471	510	542	571	621
Navarro County Other (100%)	150	146	143	140	137	137
Navarro County Manufacturing (50%)	586	664	734	804	865	936
Navarro County Steam Electric	0	8,000	13,440	13,440	13,440	13,440
Navarro Mills WSC	329	442	500	577	663	754
Rice WSC	945	1,167	1,409	1,650	1,966	2,347
Rice	229	265	304	347	398	463
Wortham	0	300	300	300	300	300
Total	**10,865**	**20,384**	**26,693**	**27,604**	**28,750**	**30,212**

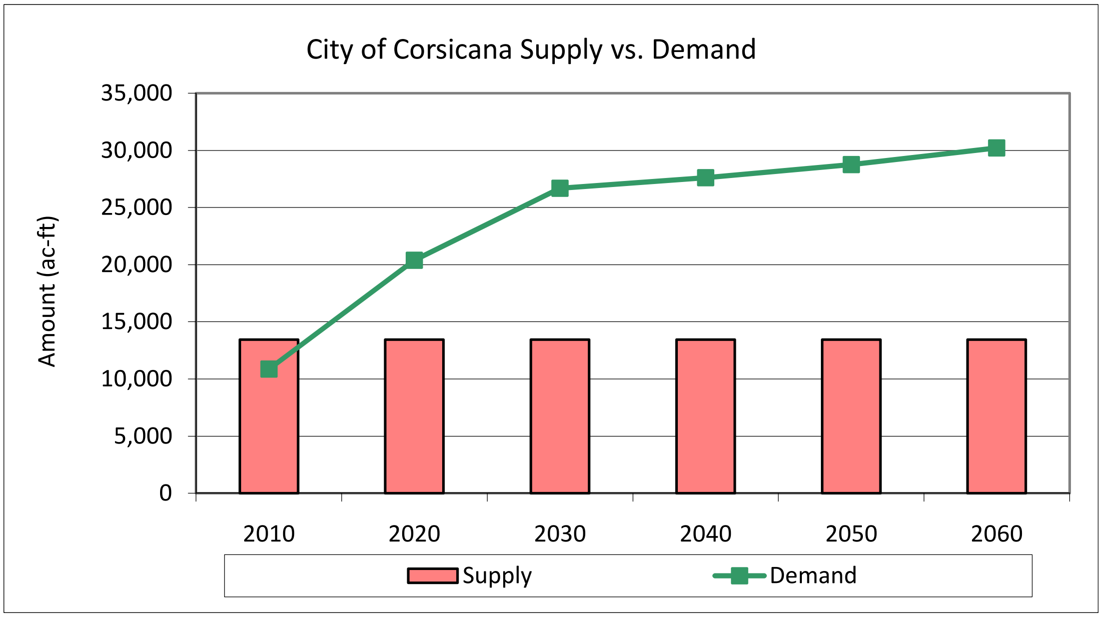
Current Supplies	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Halbert/Richland-Chambers	13,872	13,863	13,855	13,847	13,838	13,830
Navarro Mills Lake	11,210	11,210	11,210	11,210	11,210	11,210
Total	**25,082**	**25,073**	**25,065**	**25,057**	**25,048**	**25,040**
Total Supply limited by WTP WTP Capacity = 24 MGD (20 MGD Navaro Mills, 4 MGD Halbert)	**13,452**	**13,452**	**13,452**	**13,452**	**13,452**	**13,452**

Supplies Less Current Demand	**2,587**	**-6,932**	**-13,241**	**-14,152**	**-15,298**	**-16,760**

[a] Supplies from other sources

City of Corsicana

-Values in Acre-Feet per Year-



Dallas Water Utilities
-Values in Acre-Feet per Year-

WUG Demand on Dallas Water Utilities						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Addison	7,904	10,074	10,919	11,514	11,918	12,218
Carrollton[a]	25,887	26,113	26,772	27,065	27,356	27,632
Hebron (100%)	114	111	110	109	109	109
Cedar Hill[a]	9,829	14,076	16,431	17,005	17,005	17,005
Cockrell Hill	653	687	681	670	667	668
Collin County Irrigation	2,950	2,950	2,950	2,950	2,950	2,950
Coppell	11,544	11,500	11,447	11,434	11,417	11,440
Dallas	374,848	399,421	416,979	442,190	486,268	567,304
Dallas County WCID #6	0	0	0	0	0	0
Balch Springs	2,621	2,730	2,805	2,852	2,934	3,028
Dallas County-Other[a]	95	73	55	40	30	23
Dallas County Irrigation	8,768	8,768	8,768	8,768	8,768	8,768
Dallas County Manufacturing[a]	24,904	27,587	30,038	32,276	34,093	34,298
Dallas County Mining[a]	298	304	303	303	303	303
Dallas County Steam Electric (TXU)[a]	3,367	4,290	5,000	5,000	5,000	5,000
Denton[a]	0	0	7,051	18,243	31,801	58,323
Denton County Irrigation	2,400	2,400	2,400	2,400	2,400	2,400
Denton County Manufacturing (40%)	427	496	563	632	692	752
DeSoto[a]	10,355	12,375	14,162	15,807	17,741	18,271
Duncanville	7,605	7,563	7,522	7,439	7,356	7,356
Farmers Branch	11,229	12,109	12,883	13,603	14,286	14,945
Flower Mound[a]	8,662	10,435	12,320	12,320	12,320	12,320
Glenn Heights[a]	1,407	1,674	1,961	2,247	2,528	2,834
Oak Leaf	283	338	393	448	512	585
Grand Prairie[a]	23,813	16,174	21,334	26,159	31,233	31,233
Grapevine[a]	3,864	3,565	3,530	3,153	2,887	2,697
Hutchins[a]	821	1,008	1,255	1,624	2,123	3,497
Wilmer	121	205	290	552	1,309	2,241
Irving[a]	15,765	18,750	4,000	4,000	4,000	4,000
Lancaster[a]	5,614	8,665	9,346	9,273	9,273	9,273
Lewisville	19,263	21,317	23,506	26,051	29,517	33,613
Denton County FWSD NO. 1A	99	522	704	892	1,084	1,285

Dallas Water Utilities

-Values in Acre-Feet per Year-

WUG	2010	2020	2030	2040	2050	2060
Ovilla[a]	936	1,494	2,043	2,592	2,728	2,929
Red Oak[a]	1,893	3,419	4,430	5,006	5,331	5,687
Rockwall County Irrigation	277	277	277	277	277	277
Seagoville	2,085	2,542	3,019	3,480	3,890	4,191
Combine WSC	462	688	855	1,035	1,268	1,562
Combine	282	356	405	463	537	635
The Colony[a]	5,185	7,000	7,748	7,929	8,105	8,178
UTRWD Current Contract[a]	10,000	46,290	56,656	58,438	60,066	61,638
UTRWD Additional						11,210
Total	**606,630**	**688,346**	**731,911**	**786,239**	**862,082**	**992,678**

Potential Future Customers						
Crandall	0	347	601	672	1,037	1,490
Total	**0**	**347**	**601**	**672**	**1,037**	**1,490**
Total Current and Potential Customer Demand	**606,630**	**688,693**	**732,512**	**786,911**	**863,119**	**994,168**

Supply	2010	2020	2030	2040	2050	2060
Elm Fork System	184,801	183,733	182,665	181,597	180,529	179,459
Grapevine Lake	7,583	7,367	7,150	6,933	6,717	6,500
Lake Ray Hubbard	57,427	56,113	54,800	53,487	52,173	50,860
Lake Ray Hubbard Temporary	49,800	0	0	0	0	0
Lake Tawakoni	183,619	182,251	180,882	179,515	178,146	176,777
Lake Fork	40,581	41,949	43,318	44,685	46,054	47,423
Direct Reuse (Golf courses)	561	561	561	561	561	561
White Rock Lake (Irrigation Only)	3,500	3,200	2,900	2,600	2,300	2,000
Return Flow[b]	29,961	42,046	53,147	60,646	69,861	85,000
Total	**557,833**	**517,220**	**525,423**	**530,024**	**536,341**	**548,580**

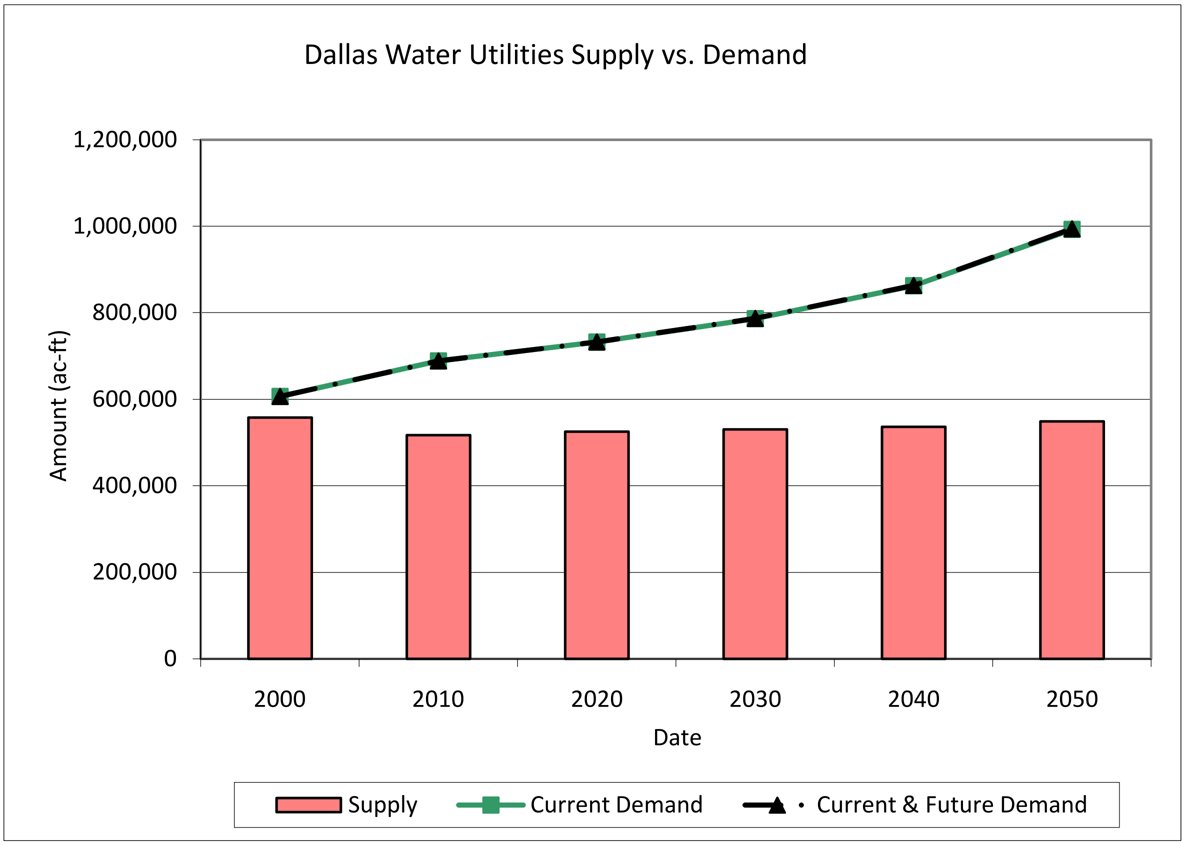
Supplies Less Current Demands	**-48,797**	**-171,126**	**-206,488**	**-256,215**	**-325,741**	**-444,098**
Supplies Less Current & Future Demands	**-48,797**	**-171,473**	**-207,089**	**-256,887**	**-326,778**	**-445,588**

[a] Supplies from other sources

[b] Includes return flows from Flower Mound, Lewisville, Denton, NTMWD and UTRWD.

Dallas Water Utilities

-Values in Acre-Feet per Year-



Dallas County Park Cities MUD

-Values in Acre-Feet per Year-

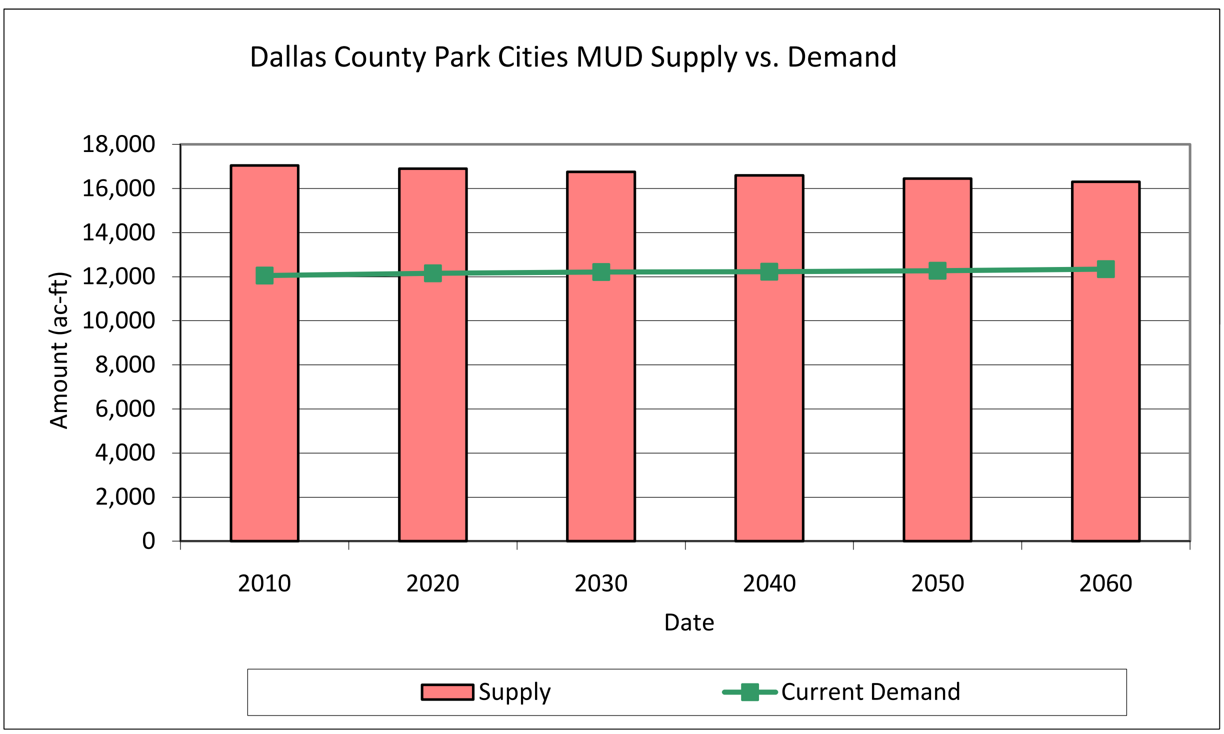
WUG Demands on Dallas County Park Cities MUD						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Highland Park	4,255	4,266	4,274	4,278	4,289	4,319
University Park	7,799	7,896	7,940	7,946	7,983	8,030
Total Potable Demand	**12,054**	**12,162**	**12,214**	**12,224**	**12,272**	**12,349**

Reuse Demand	**3,317**	**3,696**	**3,964**	**4,142**	**4,276**	**4,386**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Grapevine	17,050	16,900	16,750	16,600	16,450	16,300
Total Potable Supply	**17,050**	**16,900**	**16,750**	**16,600**	**16,450**	**16,300**

Reuse Supply	**3,317**	**3,696**	**3,964**	**4,142**	**4,276**	**4,386**

Supplies Less Current Demands	**4,996**	**4,738**	**4,536**	**4,376**	**4,178**	**3,951**

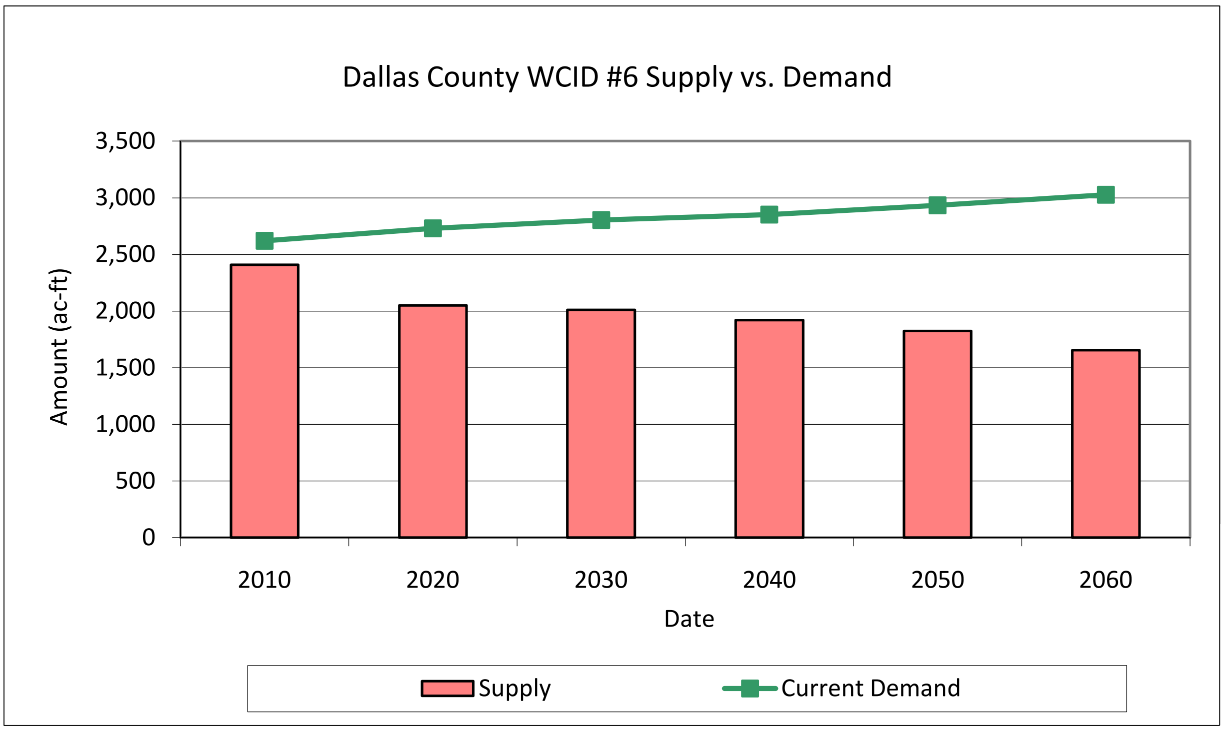


Dallas County WCID #6
-Values in Acre-Feet per Year-

WUG Demands on Dallas County WCID #6						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Balch Springs Demand	2,621	2,730	2,805	2,852	2,934	3,028
Total Potable Demand	**2,621**	**2,730**	**2,805**	**2,852**	**2,934**	**3,028**

Current Supply	2010	2020	2030	2040	2050	2060
DWU	2,410	2,050	2,012	1,920	1,823	1,654
Total Potable Supply	**2,410**	**2,050**	**2,012**	**1,920**	**1,823**	**1,654**

Supplies Less Current Demands	**-211**	**-680**	**-793**	**-932**	**-1,111**	**-1,374**



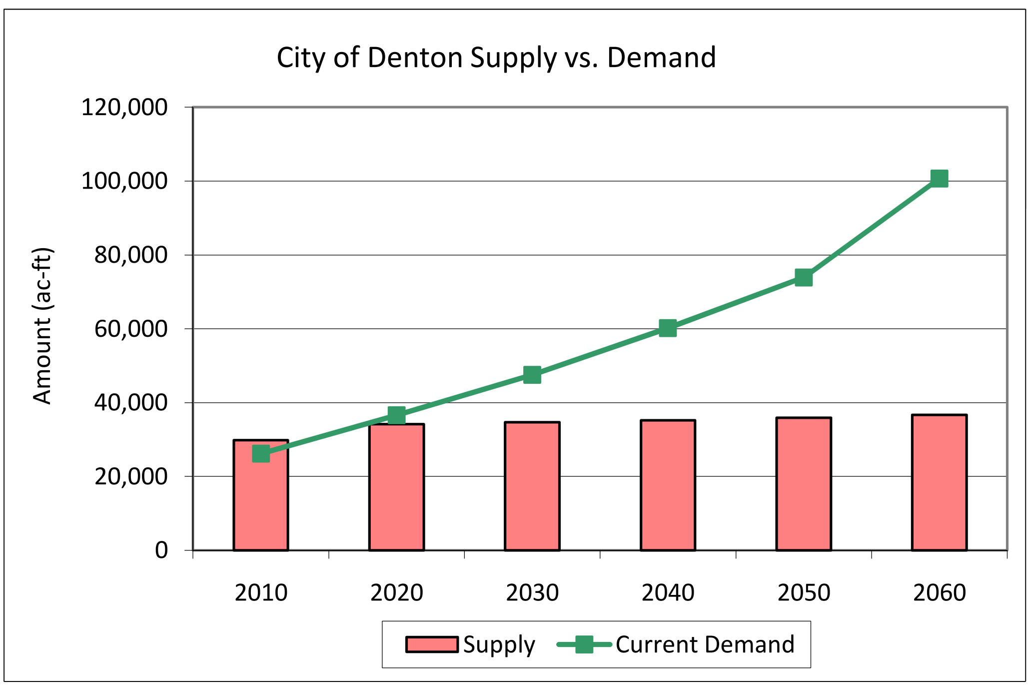
City of Denton

-Values in Acre-Feet per Year-

WUG Demands on Denton						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Denton	24,612	34,884	45,594	58,158	71,679	98,275
Denton Co - Manuf (45%)	481	558	634	711	779	846
Denton Co - SEP (100%)	644	744	844	944	1,044	1,144
Denton CO - Irr (19%)	401	401	401	401	401	401
Total Demand	**26,138**	**36,587**	**47,473**	**60,214**	**73,903**	**100,666**

Current Supplies	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Lewisville	7,918	7,817	7,715	7,613	7,512	7,410
Lake Ray Roberts	18,980	18,720	18,460	18,200	17,940	17,680
Direct Reuse	1,233	2,242	2,690	3,251	3,924	4,708
Indirect Reuse	1,682	8,861	11,557	12,907	12,726	12,545
Dallas Water Utilities	0	0	5,310	12,883	20,694	33,332
Total	**29,813**	**37,640**	**45,732**	**54,854**	**62,796**	**75,675**
WTP capacity	**29,813**	**34,191**	**34,639**	**35,200**	**35,873**	**36,657**

Supplies Less Current Demand	**0**	**-2,396**	**-12,834**	**-25,014**	**-38,030**	**-64,009**



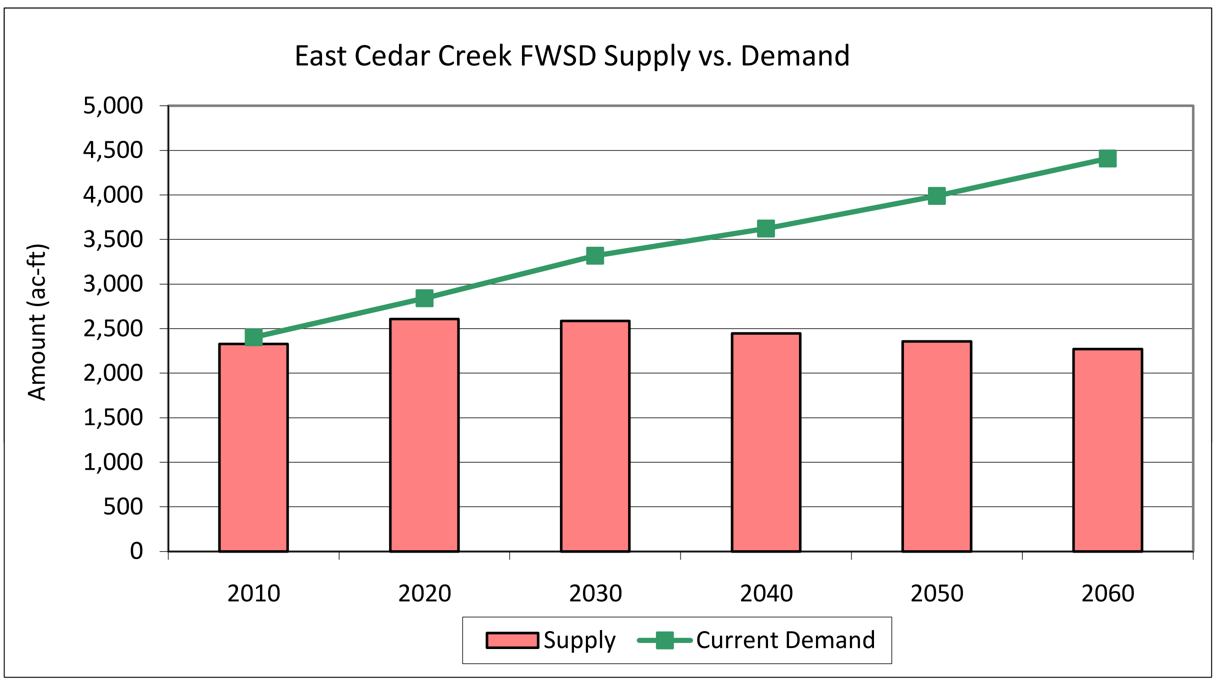
East Cedar Creek FWSD

-Values in Acre-Feet per Year-

WUG Demands on East Cedar Creek FWSD						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
East Cedar Creek FWSD	1,698	1,866	2,215	2,382	2,580	2,777
Gun Barrel City (50-60%)	704	977	1,104	1,243	1,411	1,632
Total	**2,402**	**2,843**	**3,319**	**3,625**	**3,991**	**4,409**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
TRWD Sources	2,330	2,608	2,587	2,446	2,358	2,271
Total	**2,330**	**2,608**	**2,587**	**2,446**	**2,358**	**2,271**

Supplies Less Current Demands	**-72**	**-235**	**-732**	**-1,179**	**-1,633**	**-2,138**



City of Ennis

-Values in Acre-Feet per Year-

WUG Demands on Ennis						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Ennis	3,497	4,358	5,504	6,949	8,834	11,308
Community Water Company (Ellis County)[(a)]	116	171	201	230	264	304
East Garrett WSC (Ellis County-Other)	56	56	56	56	56	56
Rice WSC	50	50	50	50	50	50
Ellis County Manufacturing (10%)	347	367	384	399	409	391
Ellis County Steam Electric Power (Suez, NA Electric Power)	1,401	1,401	1,401	1,401	1,401	1,401
Bardwell[(b)]	0	17	42	69	100	135
Total	**5,467**	**6,420**	**7,638**	**9,154**	**11,114**	**13,645**

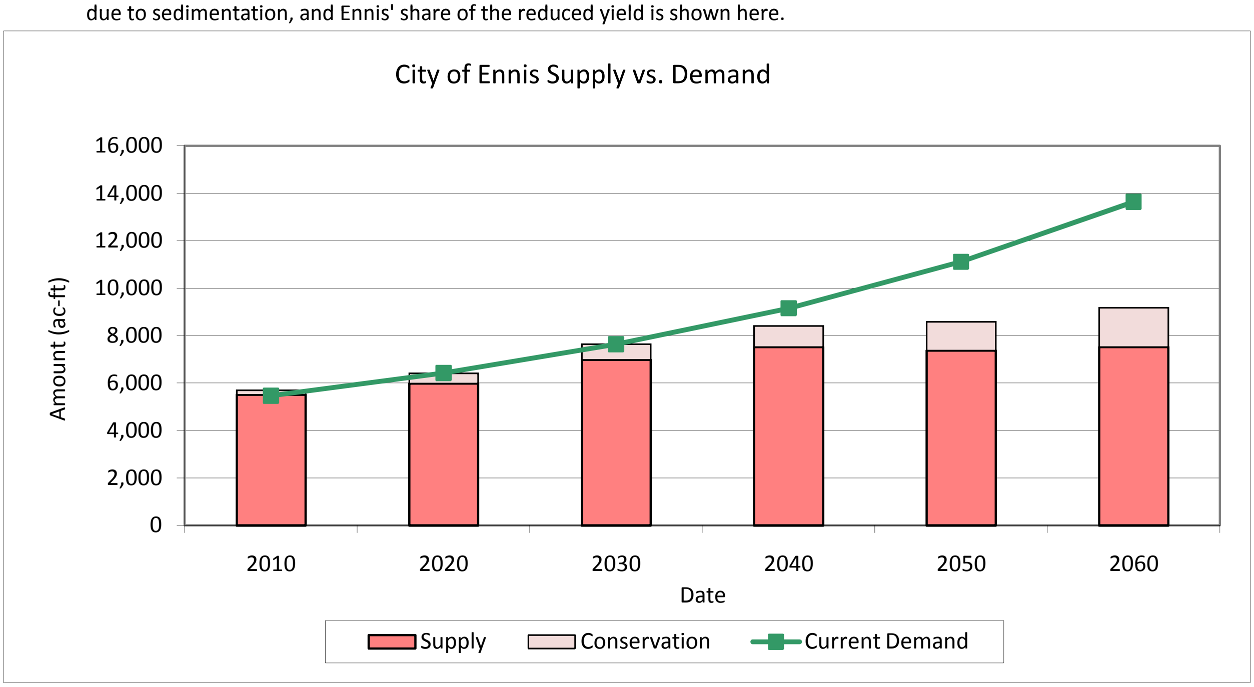
Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Bardwell (TRA)[(c)]	4,712	4,484	4,257	4,030	3,802	3,575
Direct reuse	800	800	800	800	800	800
Contracted amount from TRWD	3,991	3,991	3,991	3,991	3,991	3,991
Expected Use from TRWD	0	695	1,932	3,097	2,776	3,921
Total Currently Available Supplies with Expected Use from TRWD Limited by Water Treatment Plant Capacity	***5,512***	***5,979***	***6,989***	***7,526***	***7,378***	***7,526***

Supplies Less Current Demands	**45**	**-441**	**-649**	**-1,628**	**-3,736**	**-6,119**

Notes: (a) The current contract limits Community Water Company to 266 ac-ft/yr. The 2060 supply would require an amendment.

(b) There is currently no contract between Bardwell and Ennis for water supply. Bardwell would have to get a contract to obtain supplies from Ennis.

(c) Ennis has a contract with the Trinity River Authority for 5,200 acre-feet per year. The yield of Bardwell is decreasing over time due to sedimentation, and Ennis' share of the reduced yield is shown here.



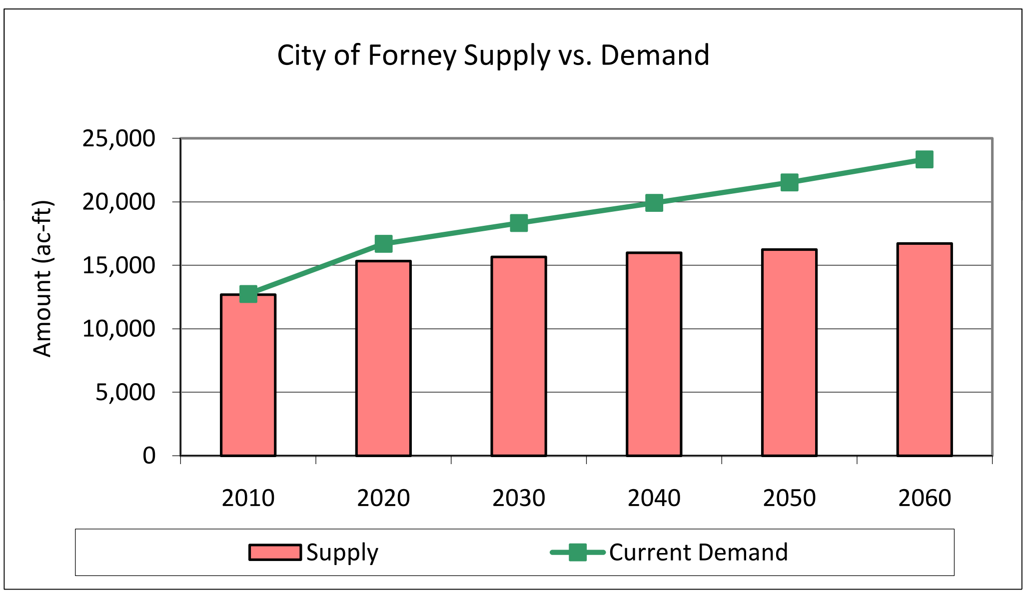
City of Forney

-Values in Acre-Feet per Year-

WUG Demands on Forney						
WUGs	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Forney	2,097	4,033	4,973	5,763	6,422	7,048
High Point WSC (50%)	181	259	308	364	433	522
Talty WSC (100%)	813	1,717	2,337	3,024	3,878	4,948
Kaufman County Other (10%)	208	207	205	204	202	202
Kaufman County Steam Electric (100%)	8,979	10,000	10,000	10,000	10,000	10,000
Kaufman County Manufacturing (60%)	456	488	521	557	596	637
Total	**12,734**	**16,704**	**18,344**	**19,912**	**21,531**	**23,357**

Current Supplies	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
NTMWD	3,717	6,367	6,692	7,007	7,265	7,729
Reuse from Garland (SEP only)	8,979	8,979	8,979	8,979	8,979	8,979
Total	**12,696**	**15,346**	**15,671**	**15,986**	**16,244**	**16,708**

Supplies Less Current Demands	**-38**	**-1,358**	**-2,673**	**-3,926**	**-5,287**	**-6,649**



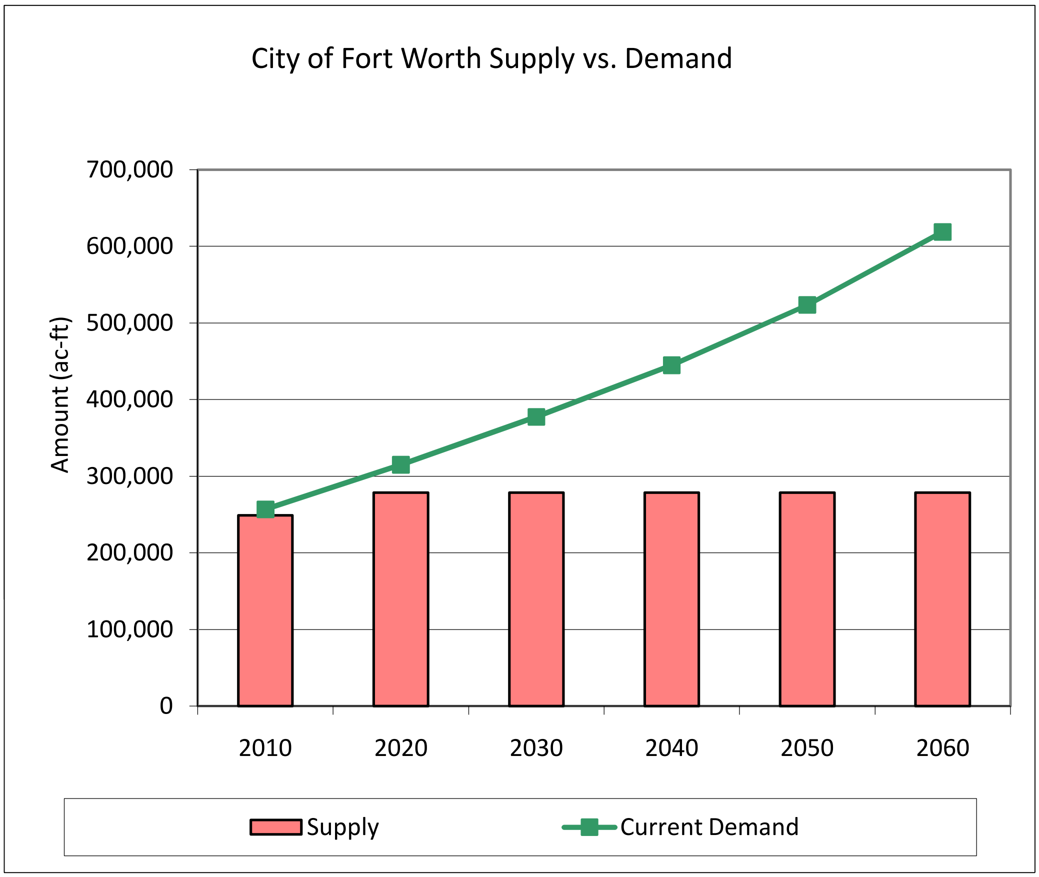
City of Fort Worth
-Values in Acre-Feet per Year-

WUG Demands on Fort Worth						
WUG Demands	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Fort Worth Municipal	175,513	220,412	271,349	330,773	401,222	489,088
84% of Tarrant County Manufacturing (direct or through customers)	14,497	17,173	19,849	22,616	25,132	27,264
Aledo	0	456	1,031	1,605	1,712	1,712
Bethesda WSC	3,483	2,978	3,666	4,428	5,357	6,533
Burleson	5,248	7,676	9,462	9,550	9,749	10,062
Crowley	1,238	1,548	2,049	2,881	3,547	3,893
Dalworthington Gardens	505	550	581	596	608	618
Denton County-Other	445	579	663	743	825	908
Edgecliff	460	451	443	434	428	428
Everman	239	266	244	222	215	215
Forest Hill	1,492	1,584	1,671	1,776	1,912	2,008
Grand Prairie	1,121	1,121	1,121	1,121	1,121	1,121
Haltom City	6,521	7,835	8,142	8,231	8,272	8,324
Haslet	663	1,434	2,576	2,568	2,561	2,561
Hurst	6,708	6,991	6,854	6,716	6,670	6,670
Keller	9,124	10,138	11,495	11,380	11,380	11,380
Kennedale	86	425	587	698	768	823
Lake Worth	585	665	757	845	945	999
North Richland Hills	3,516	3,917	4,193	4,357	4,475	4,574
Watauga	3,437	3,532	3,500	3,416	3,388	3,388
Northlake	268	404	467	898	1,329	1,599
Richland Hills	865	919	979	1,049	1,096	1,118
Roanoke	1,498	2,474	3,280	4,090	5,529	6,755
Saginaw	3,161	3,755	4,176	4,489	4,705	4,885
Sansom Park Village	51	57	57	53	56	63
Southlake (Tarrant & Denton Co)	9,321	9,826	9,949	10,514	11,259	11,855
Tarrant County Other	1,885	1,805	1,751	1,671	1,644	1,644
Trophy Club	2,077	2,420	2,707	2,962	3,249	3,536
Westover Hills	276	274	272	270	268	268
Westworth Village	350	412	426	442	470	519
White Settlement	1,524	1,640	1,735	1,824	2,024	2,246
Pantego (Future)	0	100	100	100	100	100
Willow Park (Future) - 50% of net of GW, rest from Weatherford.	0	88	270	400	487	549
Arlington (reuse)	207	602	602	602	602	602
Euless (reuse)	368	368	368	368	368	368
Total	**256,732**	**314,875**	**377,372**	**444,688**	**523,473**	**618,676**

City of Fort Worth
-Values in Acre-Feet per Year-

Current Supplies	2010	2020	2030	2040	2050	2060
TRWD Raw Water	247,979	279,288	280,871	288,470	299,134	309,882
Water Treatment Capacity (495 mgd Total)	277,748	277,748	277,748	277,748	277,748	277,748
TRWD Limited by Treatment	247,979	277,748	277,748	277,748	277,748	277,748
Direct Reuse (Village Creek)	897	897	897	897	897	897
Total Supply	**248,876**	**278,645**	**278,645**	**278,645**	**278,645**	**278,645**

Supplies Less Current Demands	**-7,856**	**-36,230**	**-98,727**	**-166,043**	**-244,828**	**-340,031**



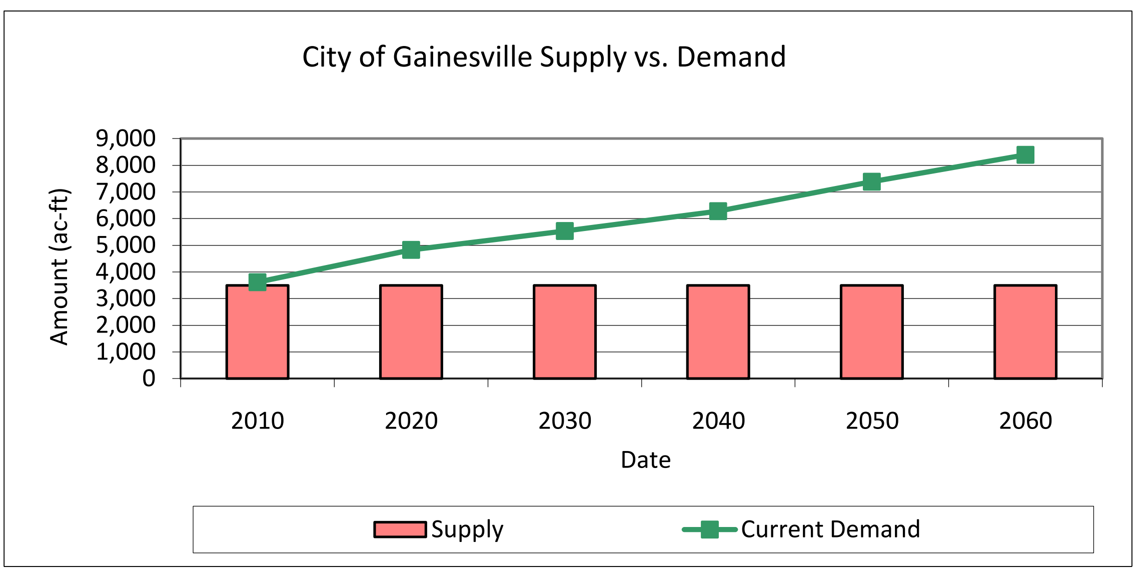
City of Gainesville

-Values in Acre-Feet per Year-

WUG Demands on Gainesville						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Gainesville	3,387	3,746	4,171	4,578	5,027	5,522
Bolivar WSC	0	18	83	104	127	149
Cooke County Other	0	125	125	125	125	125
Kiowa Homeowners WSC	0	100	100	100	100	100
Lindsay	0	40	50	50	50	50
Valley View	0	150	400	650	1,200	1,600
Woodbine WSC	0	40	80	120	170	230
Cooke County Irrigation	0	70	70	70	70	70
Cooke County Manufacturing	223	255	243	265	283	306
Cooke County Mining	0	99	67	71	74	77
Total for Cooke County WSP	3,610	4,643	5,389	6,133	7,226	8,229
Existing Direct Reuse	9	9	9	9	9	9
Cooke County Irrigation Reuse	0	70	70	70	70	70
Cooke County Mining Reuse	0	99	68	71	75	78
Total from Gainesville	**3,619**	**4,821**	**5,536**	**6,283**	**7,380**	**8,386**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Trinity Aquifer	2,360	2,360	2,360	2,360	2,360	2,360
Moss Lake (limited by WTP)	1,120	1,120	1,120	1,120	1,120	1,120
Direct Reuse	9	9	9	9	9	9
Total	**3,489**	**3,489**	**3,489**	**3,489**	**3,489**	**3,489**

Supplies Less Current Demands	**-130**	**-1,332**	**-2,047**	**-2,794**	**-3,891**	**-4,897**



City of Garland

-Values in Acre-Feet per Year-

WUG Demands on Garland						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Garland	42,484	42,055	42,789	42,462	42,190	42,190
9% of Dallas County Manufacturing	3,070	3,401	3,703	3,979	4,203	4,228
Dallas County Steam Electric (Part)	67	86	238	240	240	240
Collin County Steam Electric (100%)	771	715	1,000	1,200	1,600	2,000
Total Treated & Raw Demand	**46,392**	**46,257**	**47,730**	**47,881**	**48,233**	**48,658**

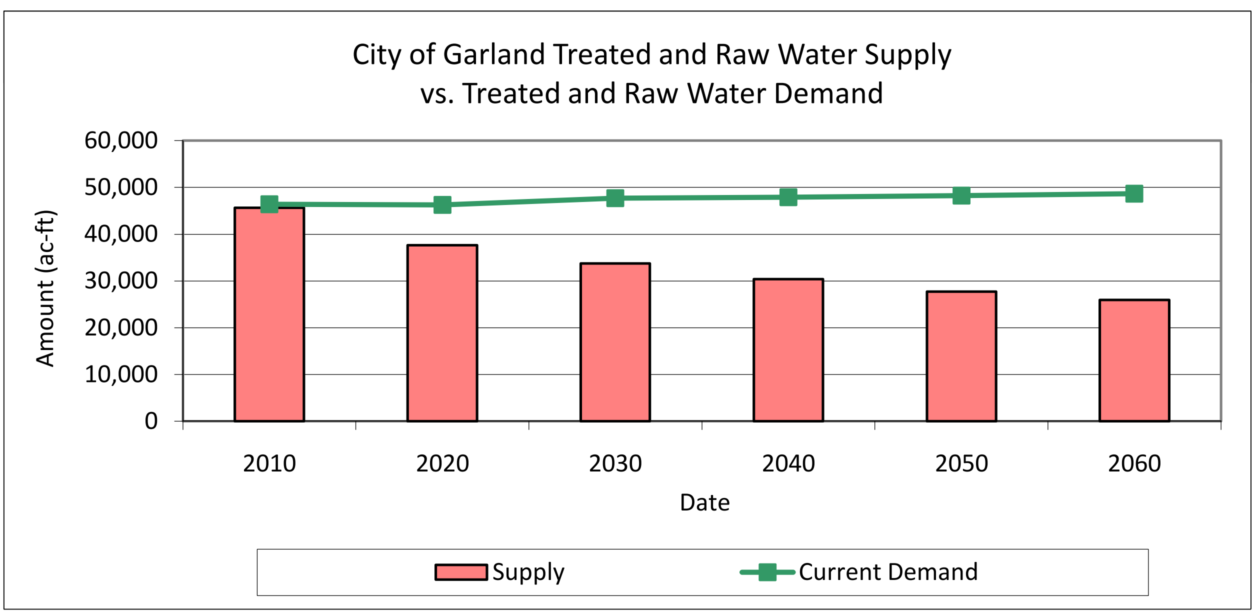
Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
NTMWD	45,634	37,649	33,741	30,411	27,702	25,973
Total	**45,634**	**37,649**	**33,741**	**30,411**	**27,702**	**25,973**

Supplies Less Current Demands*	**-758**	**-8,608**	**-13,989**	**-17,470**	**-20,531**	**-22,685**

Reuse

Reuse Demand (Kaufman Co SEP)	8,979	8,979	8,979	8,979	8,979	8,979
Currently Available Reuse Supply	8,979	8,979	8,979	8,979	8,979	8,979
Reuse Need (Reuse Demand – Reuse Supply	**0**	**0**	**0**	**0**	**0**	**0**

Note: *Full development of North Texas Municipal Water District water management strategies recommended in this plan will meet all needs for Garland and other NTMWD customers.



City of Grand Prairie

-Values in Acre-Feet per Year-

WUG Demands on Grand Prairie						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Grand Prairie	29,134	33,266	38,426	43,251	48,325	48,325
Johnson County SUD	0	6,726	6,726	6,726	6,726	6,726
Dallas County Irrigation (golf course)	300	300	300	300	300	300
Total Demand	**29,434**	**40,292**	**45,452**	**50,277**	**55,351**	**55,351**

Current Supply	2010	2020	2030	2040	2050	2060
Trinity Aquifer	4,200	4,200	4,200	4,200	4,200	4,200
Joe Pool Lake (raw water)	300	300	300	300	300	300
Fort Worth (TRWD)	1,065	1,029	874	757	662	578
DWU	21,897	12,147	15,303	17,615	19,404	17,062
Total	**27,462**	**17,676**	**20,677**	**22,872**	**24,566**	**22,140**

Supplies Less Current Demands*	**-1,972**	**-22,616**	**-24,775**	**-27,405**	**-30,785**	**-33,211**

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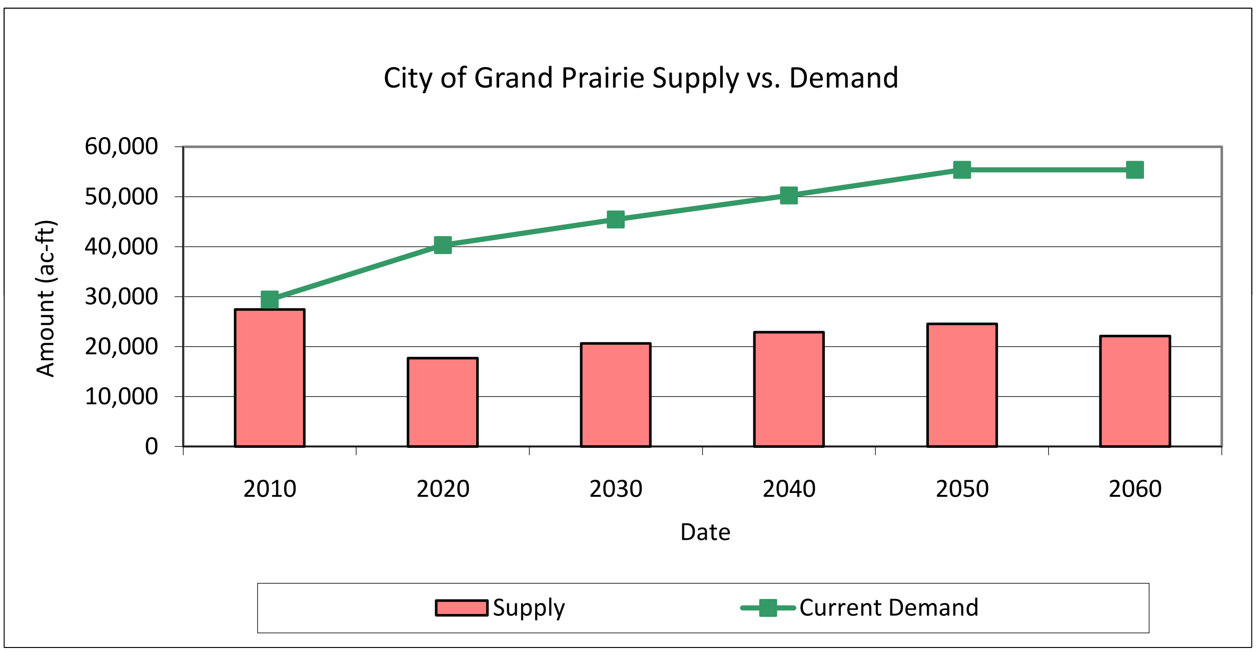


Greater Texoma Utility Authority

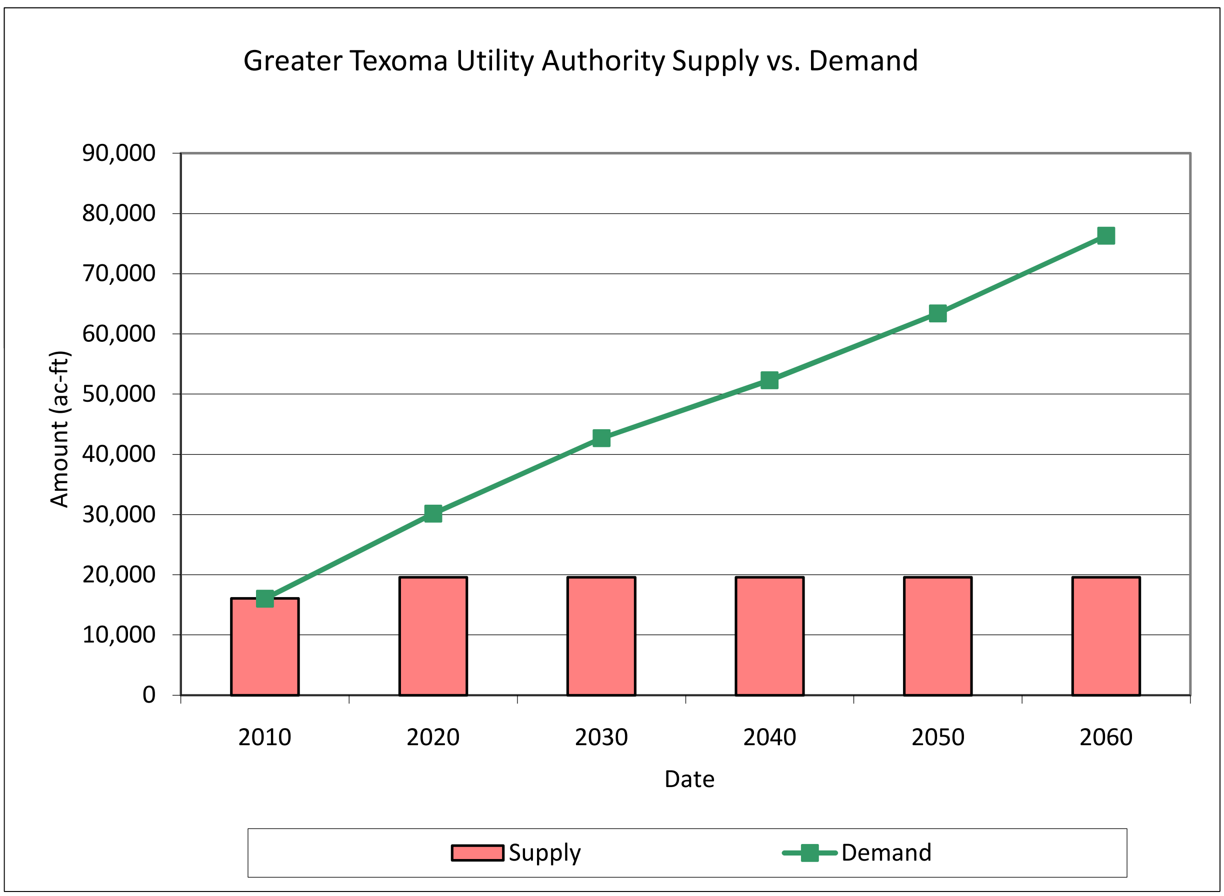
-Values in Acre-Feet per Year-

WUG Demands on GTUA						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Anna	1,441	2,736	4,187	5,653	7,329	12,356
Bells		80	150	210	260	300
Collinsville	0	100	200	300	400	500
Denison	0	0	0	0	0	0
Ector	0	0	0	0	0	0
Gainesville	0	0	0	0	0	0
Fannin Co Other (Bailey & Others)	0	0	0	0	0	0
Grayson County-Other	75	860	960	1,160	1,360	1,760
Grayson County Manufacturing	5,219	5,927	6,563	7,155	7,635	8,384
Grayson County Steam Electric	5,600	8,963	12,326	12,326	12,326	12,326
Gunter		180	350	530	700	820
Howe	286	473	720	968	1,120	1,248
Leonard	0	0	0	0	0	0
Luella WSC	0	38	80	140	150	220
Marilee SUD	125	150	400	650	1,000	1,350
Muenster	0	0	0	0	0	0
Pottsboro	560	840	1,160	1,430	1,710	1,835
Sherman	2,535	3,694	5,150	6,802	9,040	12,258
South Grayson WSC	0	100	100	175	275	400
Southmayd	0	40	100	220	400	525
Tioga	0	225	375	425	475	500
Tom Bean	0	10	40	75	120	130
Two Way SUD	0	200	350	500	650	800
Valley View	0	0	0	0	0	0
Van Alstyne	58	965	2,064	2,696	2,973	3,103
Whitesboro	0	50	150	200	350	700
Whitewright	0	200	400	600	750	900
Melissa	138	4,303	6,858	10,084	14,386	15,901
Total	**16,037**	**30,134**	**42,683**	**52,299**	**63,409**	**76,316**

Greater Texoma Utility Authority
-Values in Acre-Feet per Year-

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Texoma (Potable)	8,000	8,000	8,000	8,000	8,000	8,000
Usable Lake Texoma Raw	5,600	5,600	5,600	5,600	5,600	5,600
Supply for Pottsboro (from Denison)	560	560	560	560	560	560
Collin-Grayson Municipal Alliance Pipeline Project (From NTMWD)	1,928	5,400	5,400	5,400	5,400	5,400
Potable Water Available	10,488	13,960	13,960	13,960	13,960	13,960
Total	**16,088**	**19,560**	**19,560**	**19,560**	**19,560**	**19,560**

Supplies Less Current Demands	**0**	**-10,574**	**-23,123**	**-32,739**	**-43,849**	**-56,756**



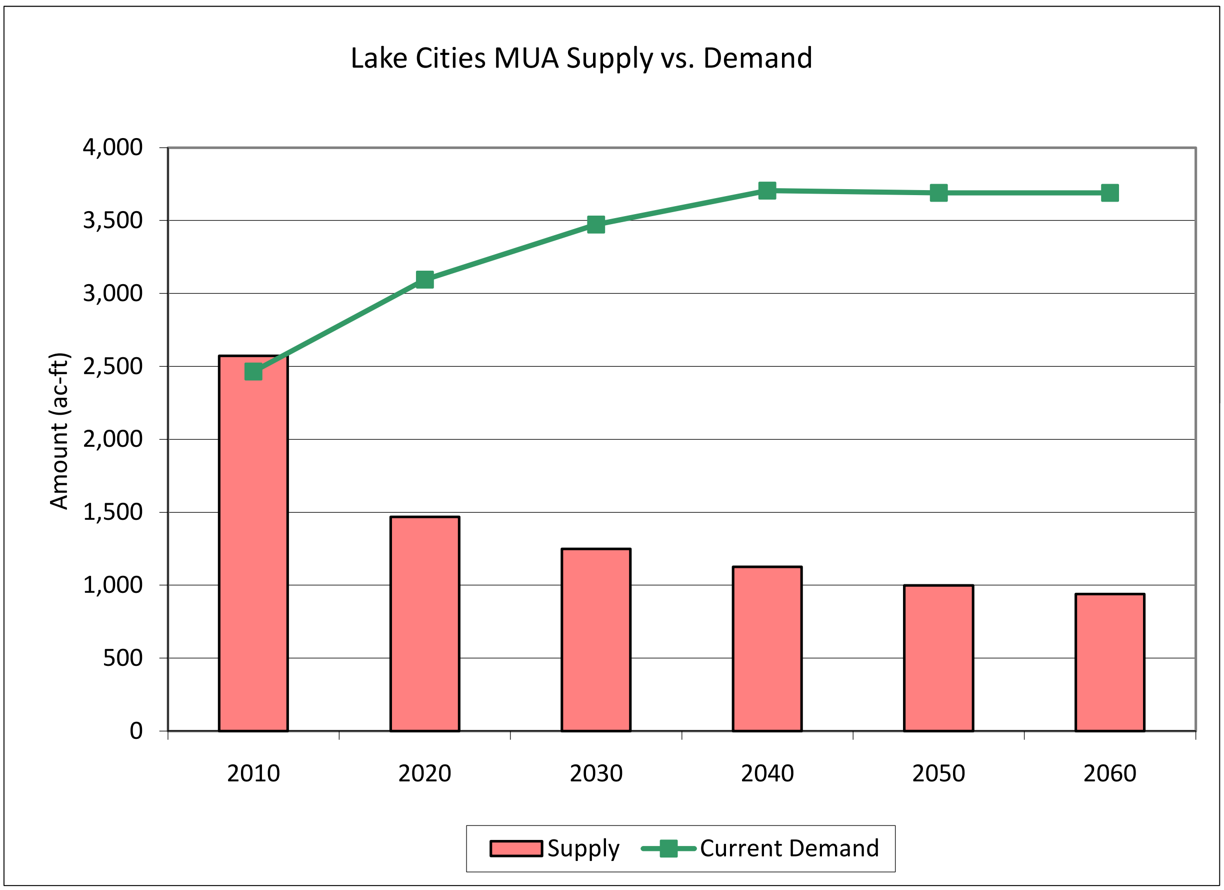
Lake Cities MUA

-Values in Acre-Feet per Year-

WUG Demands on Lake Cities MUA						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Hickory Creek	753	1,004	1,158	1,405	1,405	1,405
Lake Dallas	1,354	1,580	1,702	1,691	1,680	1,680
Shady Shores	357	510	613	608	604	604
Total	**2,464**	**3,094**	**3,473**	**3,704**	**3,689**	**3,689**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
UTRWD	2,099	995	775	651	525	465
Groundwater	474	474	474	474	474	474
Total	**2,573**	**1,469**	**1,249**	**1,125**	**999**	**939**

Supplies Less Current Demands	**0**	**-1,625**	**-2,224**	**-2,579**	**-2,690**	**-2,750**



City of Mansfield

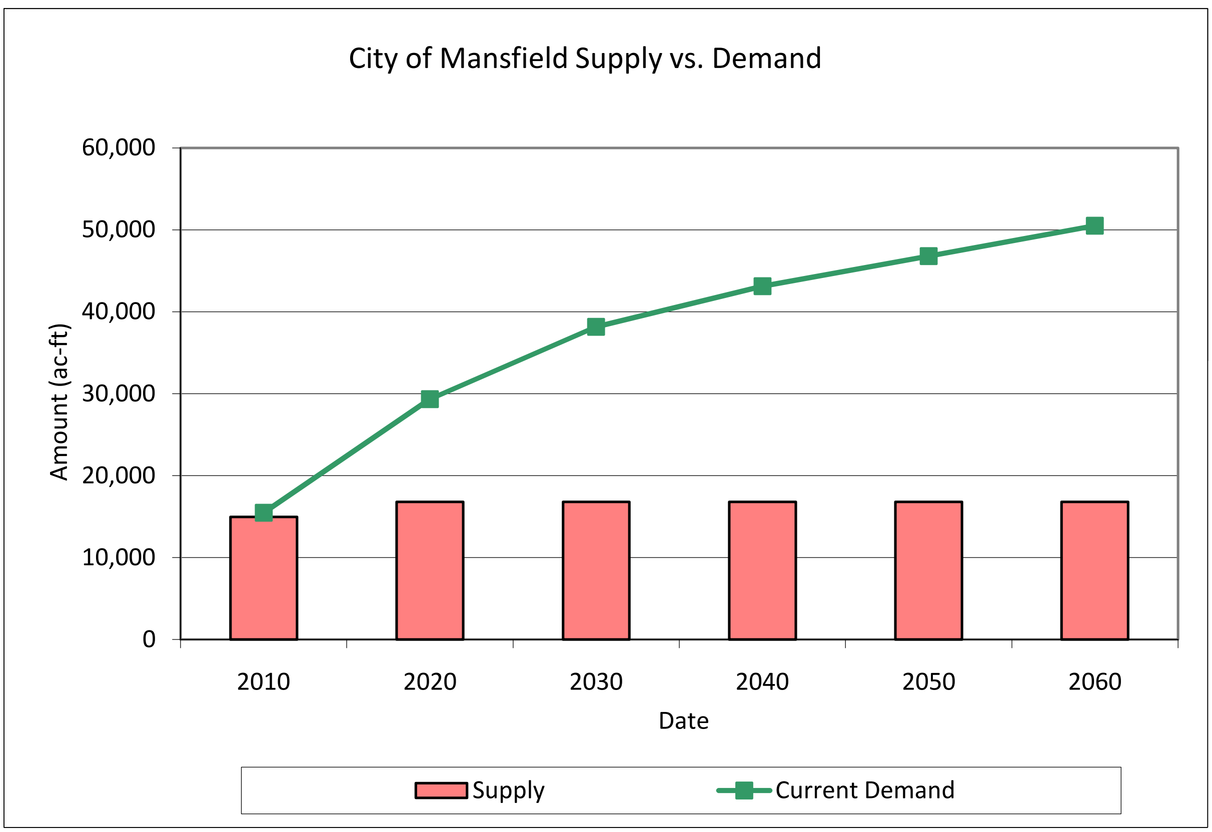
-Values in Acre-Feet per Year-

WUG Demands on Mansfield						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Mansfield Municipal	13,632	19,020	24,481	29,385	33,043	36,701
1% of Tarrant Co. Manufacturing	173	204	236	269	299	325
Sale to Grand Prairie (Maximum)	0	6,726	6,726	6,726	6,726	6,726
Sale to Johnson County SUD (Maxin	1,682	3,363	6,726	6,726	6,726	6,726
Total	**15,487**	**29,313**	**38,169**	**43,106**	**46,794**	**50,478**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
TRWD *	14,956	16,815	16,815	16,815	16,815	16,815
Total	**14,956**	**16,815**	**16,815**	**16,815**	**16,815**	**16,815**

* Limited by WTP Capacity

Supplies Less Current Demands	**-531**	**-12,498**	**-21,354**	**-26,291**	**-29,979**	**-33,663**

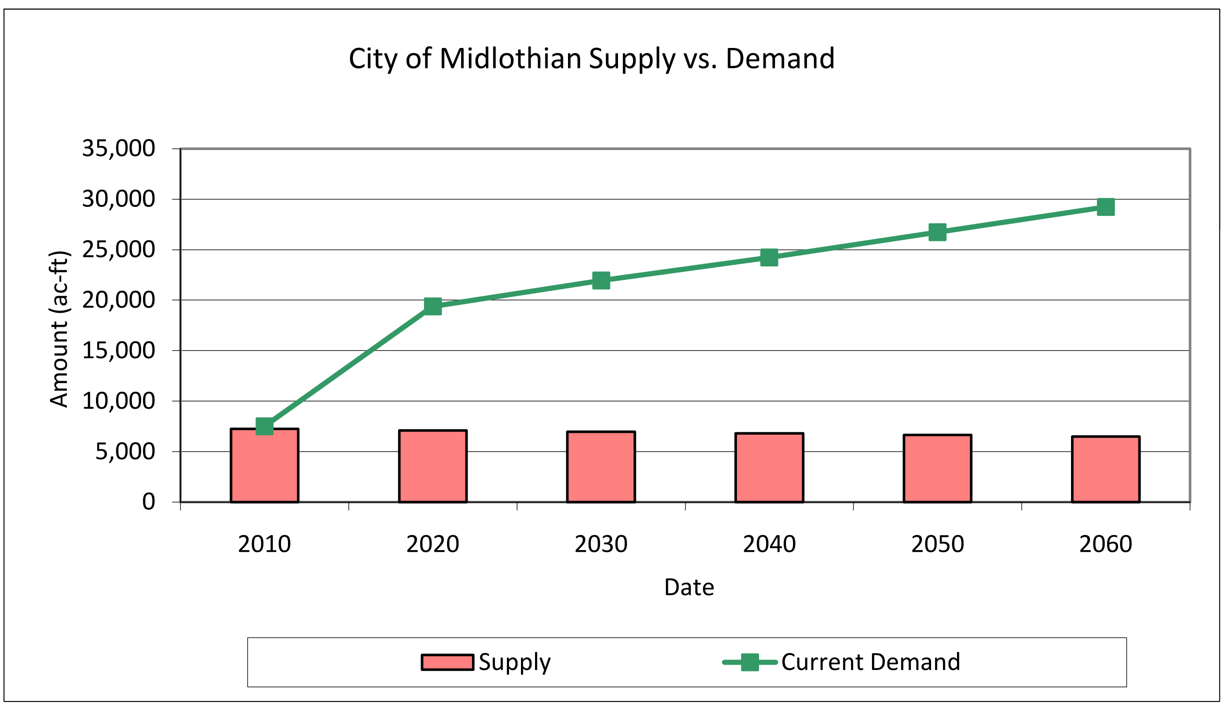


City of Midlothian

-Values in Acre-Feet per Year-

WUG Demands on Midlothian						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Midlothian Municipal	3,438	6,765	9,174	11,151	13,178	15,206
Ellis County Manufacturing (40%)	1,386	1,468	1,536	1,595	1,636	1,565
Ellis County Power	224	224	224	224	224	224
Alvarado	0	444	484	521	580	658
Grand Prairie	0	7,287	7,287	7,287	7,287	7,287
Rockett SUD	1,926	2,242	2,242	2,242	2,242	2,242
Venus	363	358	349	344	342	342
Mountain Peak SUD	155	586	658	856	1,224	1,701
Total	**7,492**	**19,374**	**21,954**	**24,220**	**26,713**	**29,225**
Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Joe Pool Lake	5,954	5,833	5,712	5,591	5,470	5,349
Joe Pool Lake from Grand Prairie	1,304	1,272	1,239	1,207	1,174	1,141
Total	**7,258**	**7,104**	**6,951**	**6,798**	**6,644**	**6,490**

Supplies Less Current Demands	**-234**	**-12,270**	**-15,003**	**-17,422**	**-20,069**	**-22,735**



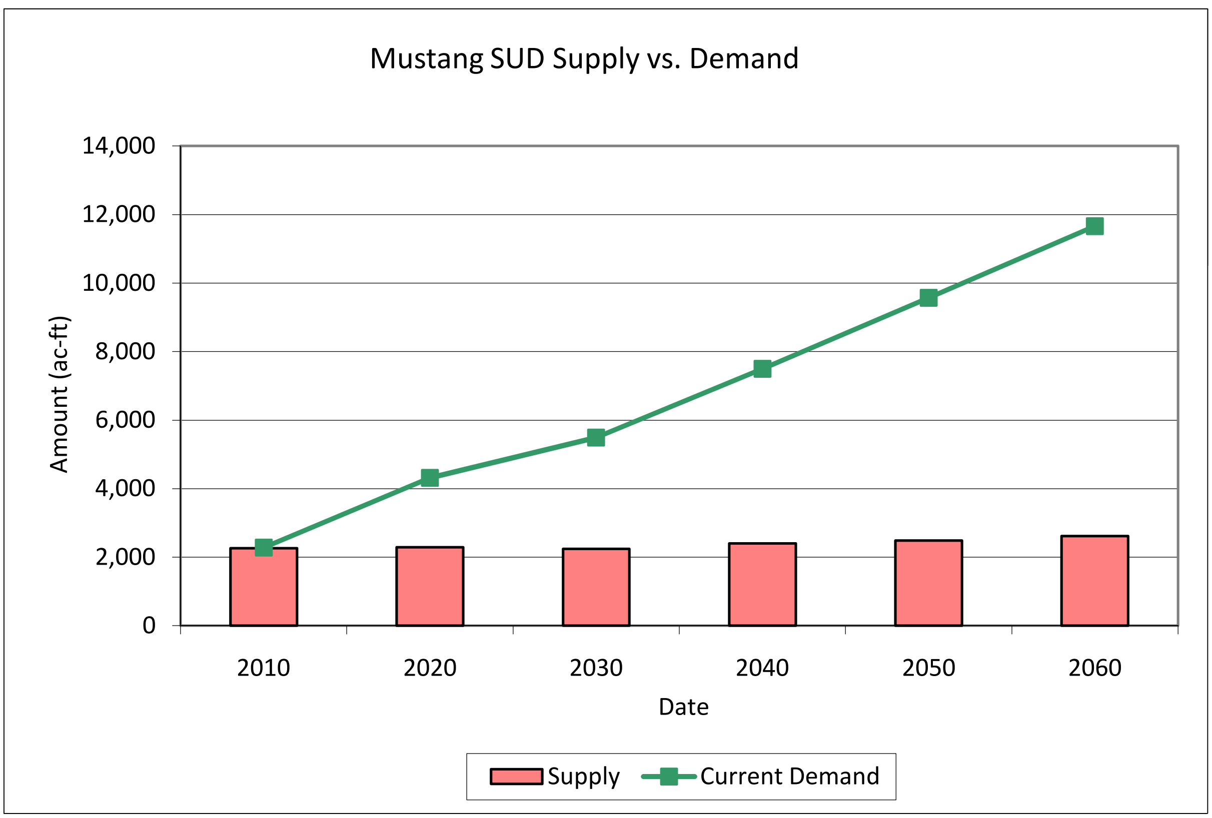
Mustang SUD

-Values in Acre-Feet per Year-

WUG Demands on Mustang SUD						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Mustang SUD	921	1,474	1,939	3,623	5,323	6,949
Cross Roads	575	1,234	1,230	1,230	1,230	1,230
Krugerville	204	228	257	331	428	613
Oak Point	585	1,377	2,067	2,318	2,585	2,868
Total	**2,285**	**4,313**	**5,493**	**7,502**	**9,566**	**11,660**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Trinity Aquifer	1,162	1,162	1,162	1,162	1,162	1,162
UTRWD Sources	1,096	1,128	1,080	1,239	1,325	1,457
Total	**2,258**	**2,290**	**2,242**	**2,401**	**2,487**	**2,619**

Supplies Less Current Demands	**-27**	**-2,023**	**-3,251**	**-5,101**	**-7,079**	**-9,041**



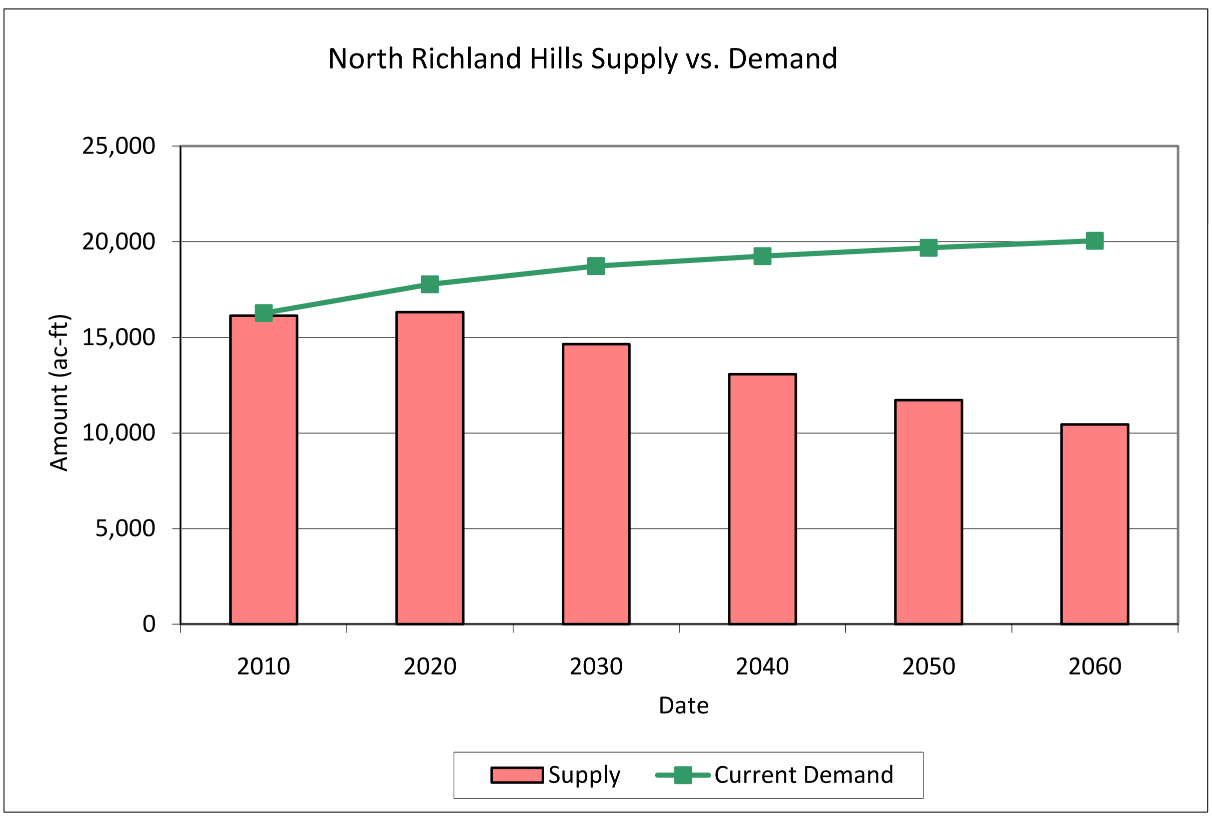
North Richland Hills

-Values in Acre-Feet per Year-

WUG Demands on North Richland						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
North Richland Hills Municipal	12,496	13,832	14,753	15,300	15,693	16,022
Tarrant County Manufacturing (2%)	345	409	473	538	598	649
Watauga	3,437	3,532	3,500	3,416	3,388	3,388
Total	**16,278**	**17,773**	**18,726**	**19,254**	**19,679**	**20,059**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Groundwater	233	233	233	233	233	233
TRA (from TRWD)	8,673	8,883	8,055	7,228	6,491	5,779
Fort Worth (from TRWD)	7,233	7,209	6,365	5,607	4,998	4,435
Total	**16,139**	**16,325**	**14,653**	**13,068**	**11,722**	**10,447**

Supplies Less Current Demands	**-139**	**-1,448**	**-4,073**	**-6,186**	**-7,957**	**-9,612**



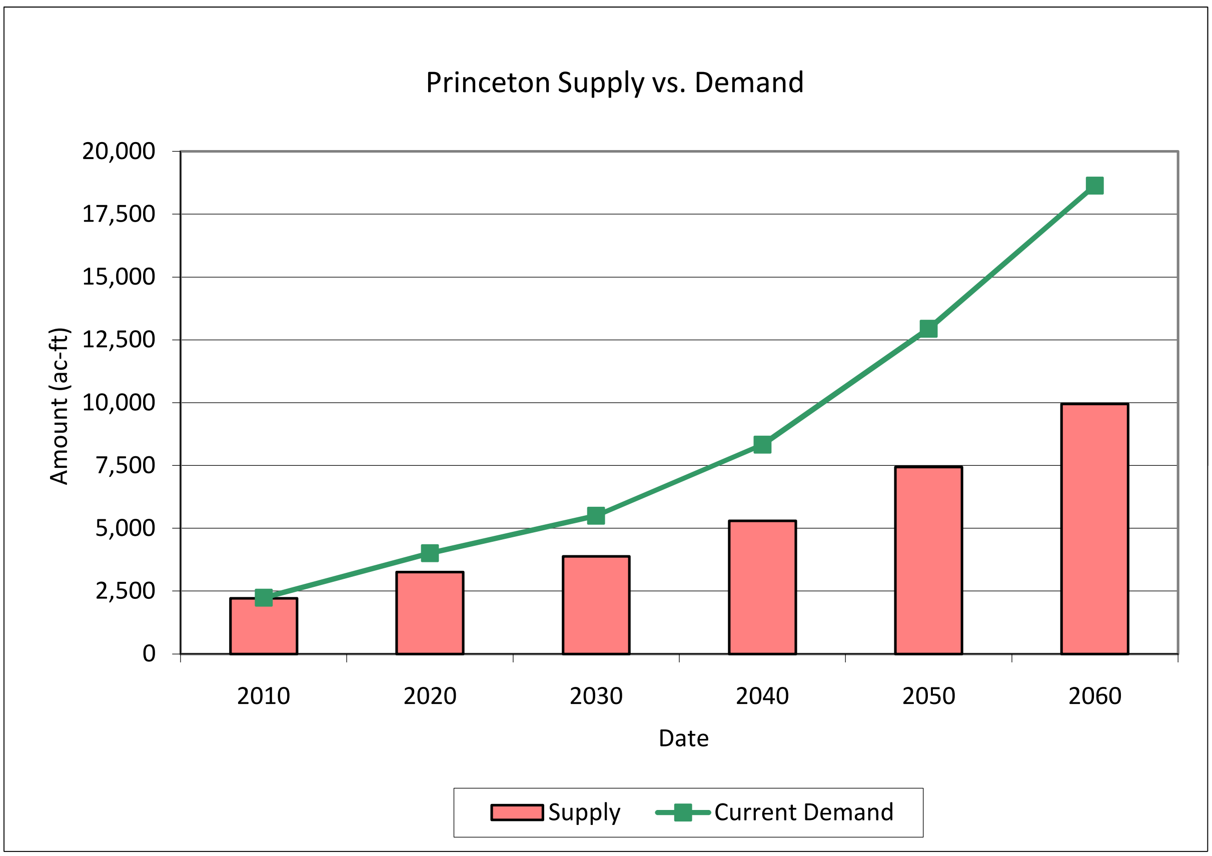
Princeton

-Values in Acre-Feet per Year-

WUG Demands on Princeton						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Princeton Municipal	1,329	2,657	3,871	6,452	10,753	16,130
Culleoka Water Supply Corp.	908	1,350	1,625	1,883	2,185	2,506
Total	**2,237**	**4,007**	**5,496**	**8,335**	**12,938**	**18,636**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
NTMWD	2,207	3,261	3,885	5,294	7,431	9,948
Total	**2,207**	**3,261**	**3,885**	**5,294**	**7,431**	**9,948**

Supplies Less Current Demands	**-30**	**-746**	**-1,611**	**-3,041**	**-5,507**	**-8,688**



North Texas Municipal Water District

-Values in Acre-Feet per Year-

WUG Demands on North Texas Municipal Water District						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Allen	20,207	24,699	27,663	27,694	27,694	27,694
Anna	1,441	2,736	4,187	5,653	7,329	12,356
Blackland WSC	483	699	842	999	1,197	1,433
Bonham	2,348	2,527	3,172	4,337	5,881	7,253
Caddo Basin SUD	1,210	1,501	1,893	2,423	3,382	4,787
Cash SUD	646	800	1,010	1,346	1,792	1,792
College Mound WSC	758	1,155	1,582	1,853	2,187	2,623
Collin Co. Other	409	371	338	306	277	252
Crandall	730	657	657	872	872	872
Culleoka WSC	908	1,350	1,625	1,883	2,185	2,506
Danville WSC	845	1,153	1,417	1,693	1,990	2,306
East Fork SUD	1,239	1,378	1,501	1,637	1,777	1,942
Fairview	3,469	3,992	5,012	6,593	6,593	6,593
Farmersville	627	1,176	1,680	2,520	3,696	5,041
Fate	2,091	3,968	4,943	5,842	6,496	6,945
Forney	2,097	4,033	4,973	5,763	6,422	7,048
Forney Lake WSC	1,376	1,694	2,096	2,592	3,222	4,028
Frisco	36,153	45,670	59,090	72,333	83,110	83,110
Garland	42,484	42,055	42,789	42,462	42,190	42,190
Gastonia-Scurry SUD	771	1,104	1,262	1,506	1,840	2,255
Hackberry	69	137	202	231	246	253
Heath	1,952	2,727	3,393	4,116	4,964	5,980
High Point WSC	362	517	616	728	865	1,044
Howe	286	473	720	968	1,120	1,248
Hunt County Other	108	128	157	203	313	485
Josephine	259	346	415	499	580	668
Kaufman	1,322	1,716	2,013	2,264	2,511	3,029
Kaufman County Other	1,457	1,446	1,436	1,425	1,414	1,414
Lavon WSC	559	1,746	2,414	2,997	3,796	5,015
Little Elm	4,035	5,365	6,652	7,625	7,625	7,625
Lowry Crossing	366	458	541	554	551	551
Lucas	1,032	1,533	1,828	2,344	3,327	4,537
McKinney	34,366	53,767	73,929	94,092	102,157	102,157
McLendon-Chisolm	272	296	320	347	396	467
Melissa	699	4,864	7,419	10,645	14,947	16,462
Mesquite	26,245	30,312	33,874	34,469	34,521	34,532
Milligan WSC	202	196	191	185	183	183
Mt. Zion WSC	442	436	430	425	421	421

North Texas Municipal Water District
-Values in Acre-Feet per Year-

WUG	2010	2020	2030	2040	2050	2060
Murphy	4,234	8,556	8,556	8,556	8,556	8,556
Nevada	247	528	631	1,254	2,090	5,226
North Collin WSC	876	1,116	1,321	1,525	1,757	2,005
New Hope	267	383	632	944	1,416	3,148
Oak Grove	124	148	172	201	236	283
Parker	1,494	4,078	5,950	9,669	14,132	19,338
Plano	75,208	76,828	77,318	77,570	77,818	78,097
Post Oak Bend City	85	138	226	369	602	982
Princeton	1,329	2,657	3,871	6,452	10,753	16,130
Prosper	1,998	3,239	5,669	7,829	12,688	13,498
RCH WSC	642	911	919	918	912	912
Richardson	32,383	36,123	35,993	35,602	35,343	35,343
Rockwall	9,855	17,597	21,596	25,162	25,826	25,826
Rockwall Co. Other	385	385	385	383	383	383
Rowlett	11,619	13,731	15,447	16,801	17,759	18,694
Royse City	2,501	4,422	5,959	7,789	9,561	11,521
Sachse	4,399	5,124	5,806	5,746	5,746	5,746
Saint Paul	192	468	930	1,479	1,756	1,848
Scurry	87	102	118	138	160	186
Sunnyvale	1,770	2,454	3,135	3,820	4,514	4,618
Talty WSC	813	1,717	2,337	3,024	3,878	4,948
Terrell	3,807	10,385	14,780	19,138	21,731	24,643
The Colony	576	778	861	881	901	909
Van Alstyne	54	961	2,060	2,692	2,969	3,099
Wylie	6,810	8,737	10,586	12,601	12,601	12,601
Non-Municipal Customers						
Collin County Manufacturing	3,280	3,810	4,327	4,843	5,306	5,788
Collin County Irrigation (Demand for Rowlett Creek & Stewart Creek Reuse Projects)	1,847	1,847	1,847	1,847	1,847	1,847
Collin County Mining	146	146	146	146	146	146
Dallas County Manufacturing	6,482	7,180	7,818	8,401	8,874	8,927
Dallas County Steam Electric	67	86	238	240	240	240
Denton County Manufacturing	53	62	70	79	87	94
Fannin County Manufacturing	73	82	90	98	105	114
Grayson County Manufacturing	70	78	85	91	96	104
Kaufman County Irrigation	1,987	1,805	1,805	1,805	1,805	1,805
Kaufman County Manufacturing	760	813	869	928	993	1,061
Kaufman County Steam Electric	0	1,121	1,121	1,121	1,121	1,121
Rockwall County Irrigation	848	848	848	848	848	848
Rockwall County Manufacturing	20	23	26	29	32	35
Total	**371,713**	**468,648**	**548,830**	**625,443**	**685,657**	**729,767**

North Texas Municipal Water District

-Values in Acre-Feet per Year-

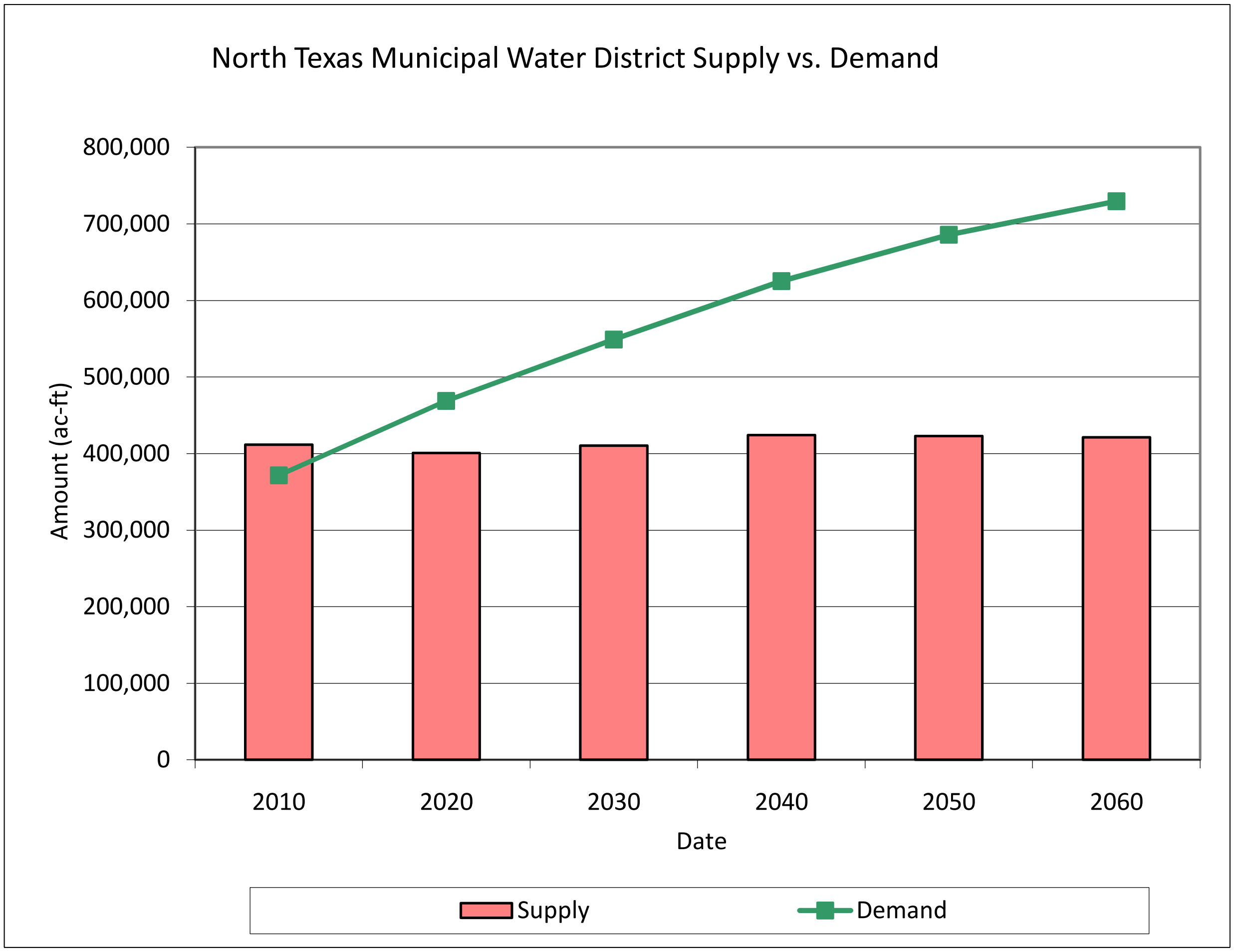
Potential Future Customers	2010	2020	2030	2040	2050	2060
Ables Springs WSC	0	845	1,054	1,299	1,644	2,090
Blue Ridge	0	365	893	1,569	2,342	2,651
Celina	0	1,500	3,000	5,000	5,000	5,000
Ector	0	9	33	57	59	62
Fannin County Other	213	413	596	768	705	659
Honey Grove	0	96	268	460	564	671
Leonard	0	76	266	587	907	1,166
Savoy	0	13	35	57	59	61
South Grayson WSC	0	100	100	100	100	100
Southwest Fannin Co SUD	0	354	663	921	1,004	1,099
Trenton	0	131	368	694	1,077	1,464
Weston	0	451	1,316	4,124	7,300	12,592
Total	213	4,351	8,593	15,635	20,760	27,614
Total Treated Water Demands	371,926	472,999	557,423	641,078	706,417	757,381
Losses in Treatment & Delivery	14,877	18,920	22,297	25,643	28,257	30,295
Collin Co Steam Elec raw water	771	715	1,000	1,200	1,600	2,000
Total Demand	**387,574**	**492,634**	**580,720**	**667,921**	**736,274**	**789,676**

Current Supply	2010	2020	2030	2040	2050	2060
Lake Lavon	112,033	110,767	109,500	108,233	106,967	105,700
Lake Texoma	77,300	77,300	77,300	77,300	77,300	77,300
Lake Chapman	47,132	47,132	47,132	47,132	47,132	47,132
Wilson Creek Reuse	50,000	60,941	71,882	71,882	71,882	71,882
Lake Bonham	5,340	5,340	5,340	5,340	5,340	5,340
East Fork Reuse (with Ray Hubbard Pass through)	51,790	67,148	87,102	102,000	102,000	102,000
Interim GTUA	15,500	0	0	0	0	0
Upper Sabine Basin	49,718	29,646	9,573	9,501	9,428	9,356
Direct Reuse for Irrigation (Collin & Rockwall Co)	2,695	2,695	2,695	2,695	2,695	2,695
Total Supply	**411,508**	**400,969**	**410,524**	**424,083**	**422,744**	**421,405**

Supplies Less Current Demands	**0**	**-91,666**	**-170,196**	**-243,839**	**-313,530**	**-368,271**

North Texas Municipal Water District

-Values in Acre-Feet per Year-



Rockett SUD

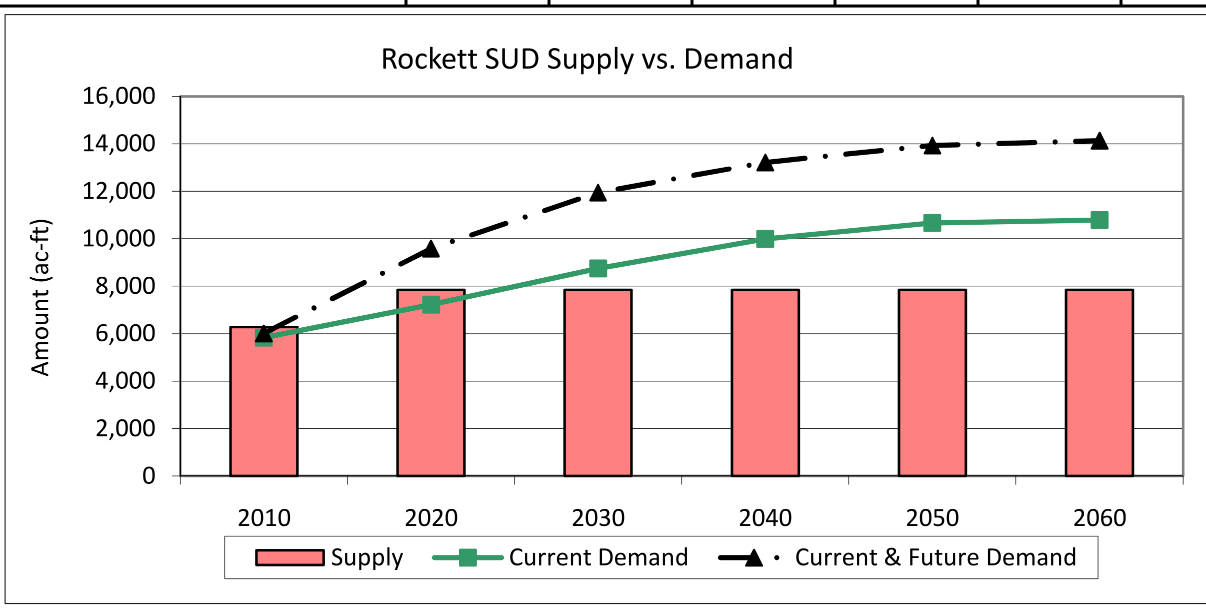
-Values in Acre-Feet per Year-

WUG Demands on Rockett SUD						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Rockett SUD Municipal	4,713	5,985	7,436	8,636	9,240	9,320
Ennis	17	17	17	17	17	17
Palmer	0	2	13	24	40	42
Pecan Hill	160	183	205	228	254	285
Red Oak	118	201	246	263	281	299
Lancaster	90	90	90	90	90	90
Oak Leaf	55	55	55	55	55	55
Waxahachie	613	613	613	613	613	613
Ellis County Other	70	70	70	70	70	70
Total	**5,836**	**7,216**	**8,745**	**9,996**	**10,660**	**10,791**

Potential Future Customers	2010	2020	2030	2040	2050	2060
Sardis-Lone Elm WSC	0	2,155	2,934	2,890	2,867	2,867
Ferris	174	220	268	328	403	473
Total	**174**	**2,375**	**3,202**	**3,218**	**3,270**	**3,340**

Current Supply	2010	2020	2030	2040	2050	2060
Midlothian	1,926	2,242	2,242	2,242	2,242	2,242
TRWD through TRA	4,356	7,256	8,003	7,779	7,235	6,413
TRWD Capped by WTP Capacity	4,356	5,600	5,600	5,600	5,600	5,600
Total	**6,282**	**7,842**	**7,842**	**7,842**	**7,842**	**7,842**

Supplies Less Current & Future Demands	**272**	**-1,749**	**-4,105**	**-5,372**	**-6,088**	**-6,289**



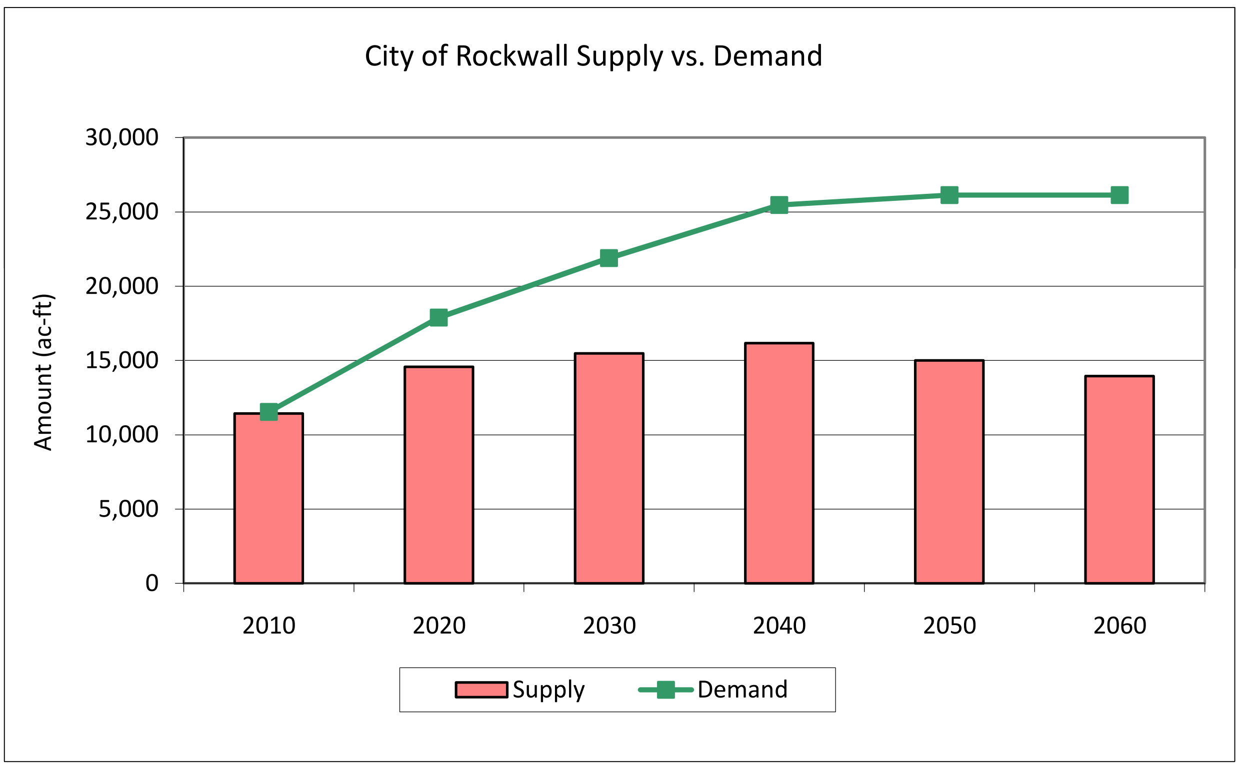
City of Rockwall

-Values in Acre-Feet per Year-

WUG Demands on Rockwall						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Rockwall	9,855	17,597	21,596	25,162	25,826	25,826
Blackland WSC	483	0	0	0	0	0
McLendon-Chisholm	272	0	0	0	0	0
Rockwall County-Other (75%)	289	289	289	287	287	287
RCH WSC	642	0	0	0	0	0
Rockwall Co. Manufacturing (60%)	12	14	16	17	19	21
Total	**11,553**	**17,900**	**21,901**	**25,466**	**26,132**	**26,134**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
NTMWD	11,444	14,568	15,481	16,174	15,009	13,950
Total	**11,444**	**14,568**	**15,481**	**16,174**	**15,009**	**13,950**

Supplies Less Demands	**-109**	**-3,332**	**-6,420**	**-9,292**	**-11,123**	**-12,184**



Sabine River Authority Upper Basin

-Values in Acre-Feet per Year-

WUG Contract Amounts for Sabine River Authority Upper Basin						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Dallas - Tawakoni	190,480	190,480	190,480	190,480	190,480	190,480
Greenville	25,764	25,764	25,764	25,764	25,764	25,764
Quitman	1,120	1,120	1,120	1,120	1,120	1,120
Emory	3,136	3,136	3,136	3,136	3,136	3,136
Ables Springs	1,120	1,120	1,120	1,120	1,120	1,120
West Tawakoni	1,120	1,120	1,120	1,120	1,120	1,120
Edgewood	840	840	840	840	840	840
NTMWD (formerly Terrell)	10,081	10,081	10,081	10,081	10,081	10,081
Combined Consumers WSC	2,240	2,240	2,240	2,240	2,240	2,240
Point	448	448	448	448	448	448
Community Water Company	92	92	92	92	92	92
Commerce	8,396	8,396	8,396	8,396	8,396	8,396
Cash SUD	5,803	5,803	5,803	5,803	5,803	5,803
McBee SUD	2,240	2,240	2,240	2,240	2,240	2,240
Tawakoni Plant farm (Van Zandt County Irrigation)	184	184	184	184	184	184
Willis Point	2,240	2,240	2,240	2,240	2,240	2,240
Dallas - Fork (Trinity Basin)	120,000	120,000	120,000	120,000	120,000	120,000
Dallas - Fork (Sabine Basin)	11,860	11,860	11,860	11,860	11,860	11,860
Bright Star Salem SUD	840	840	840	840	840	840
South Tawakoni	1,680	1,680	1,680	1,680	1,680	1,680
Longview	20,000	20,000	20,000	20,000	20,000	20,000
Kilgore	6,721	6,721	6,721	6,721	6,721	6,721
Henderson	5,041	5,041	5,041	5,041	5,041	5,041
Lone Oak Land Development (Hunt County Other)	384	384	384	384	384	384
Manufacturing - Harrison Co (Eastman Chemicals)	3,500	3,500	3,500	3,500	3,500	3,500
Total	**425,330**	**425,330**	**425,330**	**425,330**	**425,330**	**425,330**

Potential Future Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Elmo Water Supply Corp	4,484	4,484	4,484	4,484	4,484	4,484
City of East Tawakoni	1,233	1,233	1,233	1,233	1,233	1,233
Poetry WSC	2,242	2,242	2,242	2,242	2,242	2,242
College Mound WSC	5,605	5,605	5,605	5,605	5,605	5,605
North Kaufman WSC	1,233	1,233	1,233	1,233	1,233	1,233
Golden WSC	1,121	1,121	1,121	1,121	1,121	1,121
City of Quinlan	561	561	561	561	561	561
City of Lindale	5,045	5,045	5,045	5,045	5,045	5,045
Total	**21,524**	**21,524**	**21,524**	**21,524**	**21,524**	**21,524**

Sabine River Authority Upper Basin

-Values in Acre-Feet per Year-

Additional Requests from Existing Customers	2010	2020	2030	2040	2050	2060
Combined Consumers WSC	5,381	5,381	5,381	5,381	5,381	5,381
City of Henderson	5,605	5,605	5,605	5,605	5,605	5,605
City of Kilgore	5,045	5,045	5,045	5,045	5,045	5,045
Able Springs WSC	3,363	3,363	3,363	3,363	3,363	3,363
MacBee WSC	2,242	2,242	2,242	2,242	2,242	2,242
City of Quitman	1,121	1,121	1,121	1,121	1,121	1,121
City of Emory	3,364	3,364	3,364	3,364	3,364	3,364
Greenville	5,384	5,384	5,384	5,384	5,384	5,384
Willis Point	1,121	1,121	1,121	1,121	1,121	1,121
Point	1,233	1,233	1,233	1,233	1,233	1,233
West Tawakoni	1,121	1,121	1,121	1,121	1,121	1,121
Total	**34,980**	**34,980**	**34,980**	**34,980**	**34,980**	**34,980**

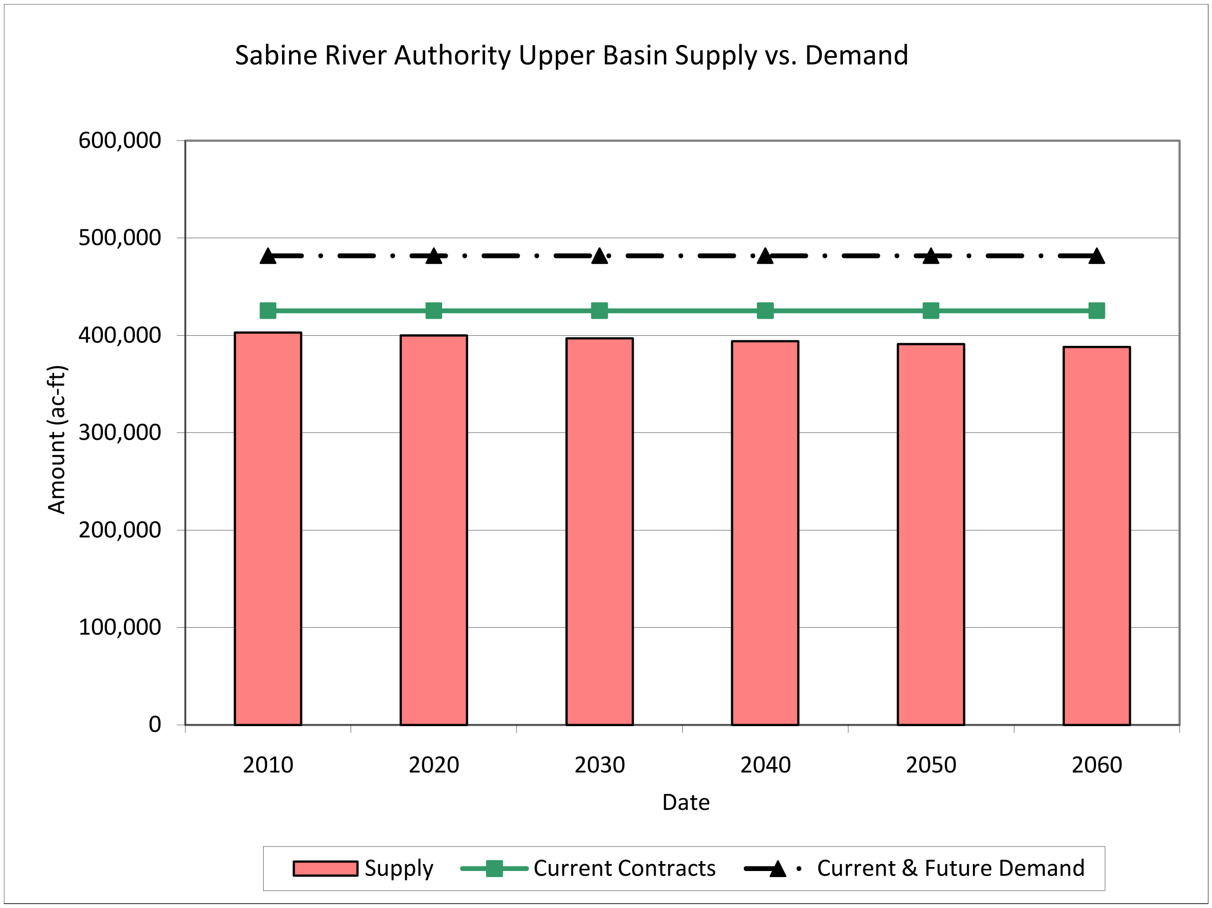
Additional Needs beyond Current Supplies and Requests						
Cash SUD					**441**	**3,900**

Current Supplies Available to SRA Upper Basin Customers	2010	2020	2030	2040	2050	2060
Lake Tawakoni (Dallas)	183,619	182,251	180,882	179,515	178,146	176,777
Lake Tawakoni (Terrell)	9,718	9,646	9,573	9,501	9,428	9,356
Lake Tawakoni (Others)	36,469	36,197	35,925	35,651	35,379	35,107
Lake Fork (Dallas- Trinity)	120,000	119,943	119,095	118,248	117,400	116,551
Lake Fork (Dallas- Sabine)	791					
Lake Fork (Others)	52,244	51,877	51,510	51,142	50,775	50,409
Total	**402,842**	**399,913**	**396,985**	**394,057**	**391,128**	**388,200**

Supplies Less Current Demands	**-22,488**	**-25,417**	**-28,345**	**-31,273**	**-34,202**	**-37,130**
Supplies Less Current & Future Demands	**-78,992**	**-81,921**	**-84,849**	**-87,777**	**-91,147**	**-97,534**

Sabine River Authority Upper Basin

-Values in Acre-Feet per Year-



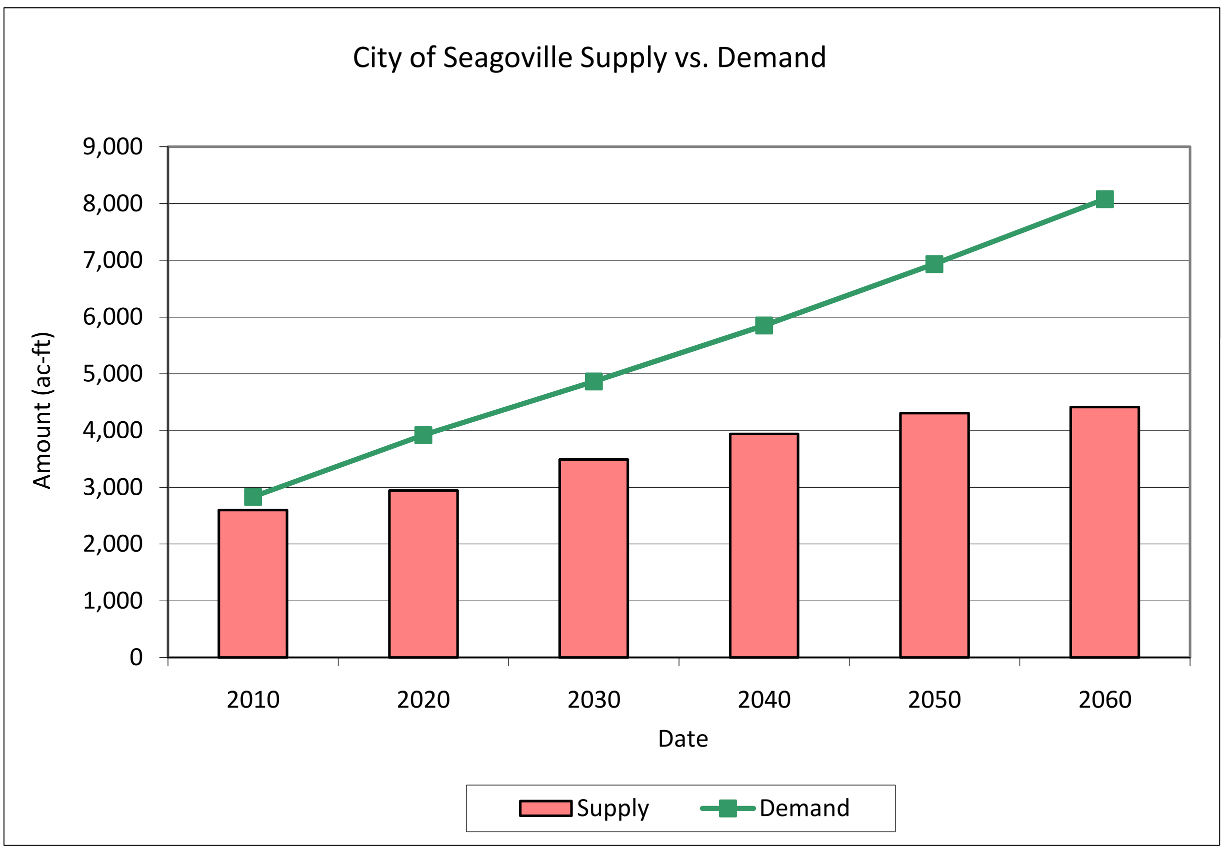
City of Seagoville

-Values in Acre-Feet per Year-

WUG Demands on Seagoville						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Seagoville	2,085	2,542	3,019	3,480	3,890	4,191
Combine WSC	462	688	855	1,035	1,268	1,562
Combine	282	356	405	463	537	635
Crandall	0	334	588	874	1,239	1,692
Total	**2,829**	**3,920**	**4,867**	**5,852**	**6,934**	**8,080**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
DWU Sources	2,601	2,944	3,491	3,941	4,308	4,414
Total	**2,601**	**2,944**	**3,491**	**3,941**	**4,308**	**4,414**

Supplies Less Current Demands	**-228**	**-976**	**-1,376**	**-1,911**	**-2,626**	**-3,666**



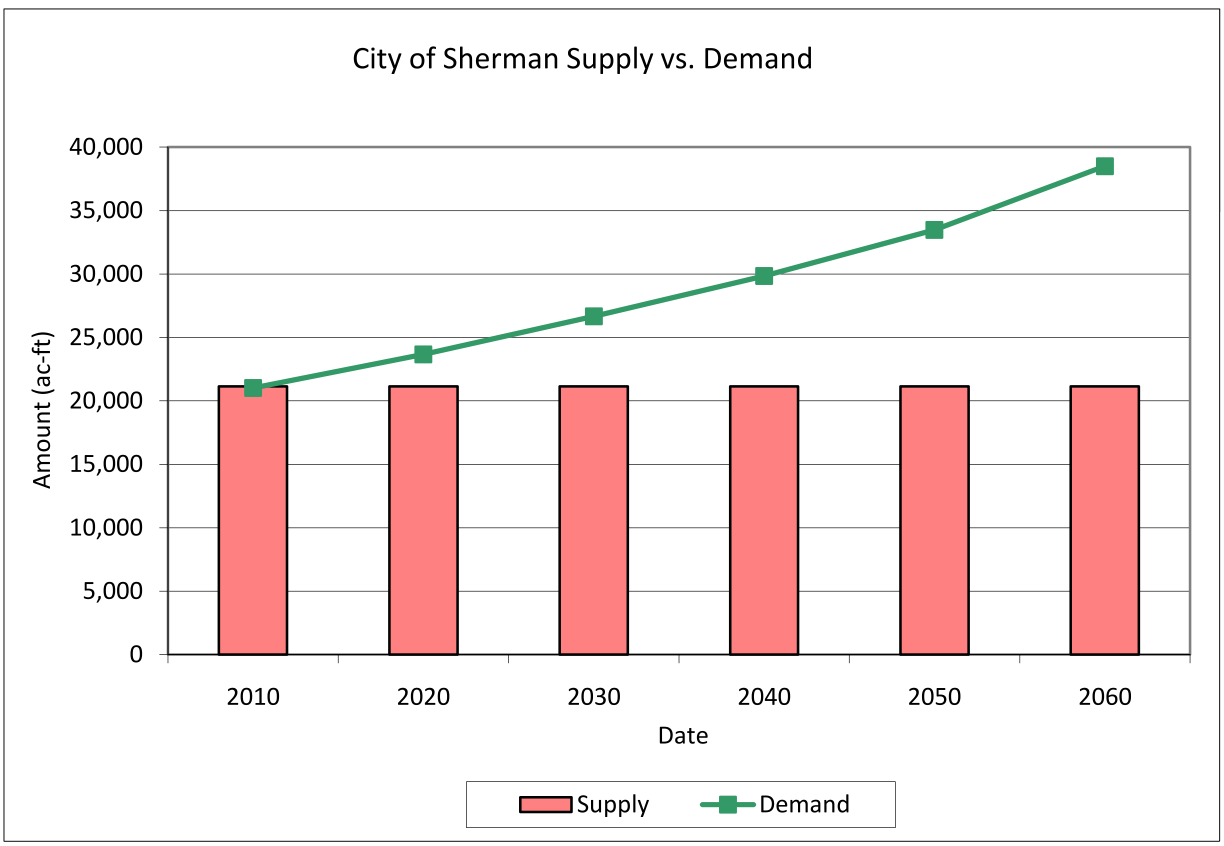
City of Sherman

-Values in Acre-Feet per Year-

WUG Demands on Sherman						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Sherman Municipal Demand	10,081	11,240	12,696	14,348	16,586	19,804
Manufacturing, Steam Electric, and Customer Demand	10,949	12,432	13,973	15,494	16,894	18,700
Total	**21,030**	**23,672**	**26,669**	**29,842**	**33,480**	**38,504**

Current Supply	2010	2020	2030	2040	2050	2060
Trinity Aquifer	4,083	4,083	4,083	4,083	4,083	4,083
Woodbine Aquifer	3,463	3,463	3,463	3,463	3,463	3,463
Greater Texoma Utility Authority (Lake Texoma, Treated, limited by WTP)	8,000	8,000	8,000	8,000	8,000	8,000
Greater Texoma Utility Authority (Lake Texoma, Raw)	5,600	5,600	5,600	5,600	5,600	5,600
Total	**21,146**	**21,146**	**21,146**	**21,146**	**21,146**	**21,146**

Supplies Less Current Demands	**116**	**-2,526**	**-5,523**	**-8,696**	**-12,334**	**-17,358**



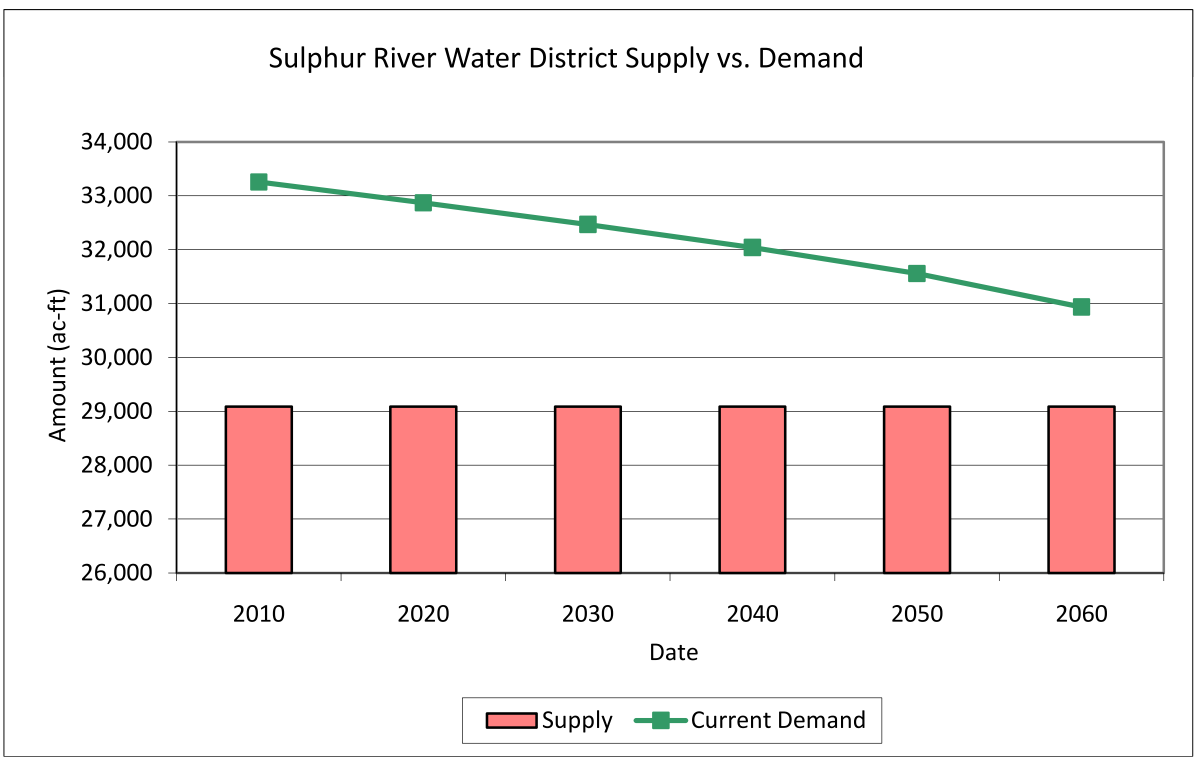
Sulphur River Water District

-Values in Acre-Feet per Year-

WUG Demands on Sulphur River Municipal Water District						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Sulphur Springs (includes Sulphur Springs manufacturing sales, Martin WSC, North Hopkins WSC and 40% Hopkins County-Other)	12,737	12,589	12,435	12,271	12,086	11,849
North Texas Municipal Water District (sales from Cooper to NTMWD)*	6,839	6,760	6,678	6,590	6,490	6,362
Upper Trinity Regional Water District (sales from Commerce)*	13,679	13,520	13,355	13,179	12,980	12,725
Total	**33,255**	**32,869**	**32,468**	**32,040**	**31,556**	**30,936**

Current Supply	2010	2020	2030	2040	2050	2060
Lake Chapman (UTRWD)	13,268	13,268	13,268	13,268	13,268	13,268
Lake Chapman (NTMWD through Cooper)	883	883	883	883	883	883
Lake Chapman (Other)	14,933	14,933	14,933	14,933	14,933	14,933
Total	**29,084**	**29,084**	**29,084**	**29,084**	**29,084**	**29,084**

Supplies Less Current Demands	**-4,171**	**-3,785**	**-3,384**	**-2,956**	**-2,472**	**-1,852**



Tarrant Regional WaterDistrict

-Values in Acre-Feet per Year-

WUG Demands on Tarrant Regional Water District						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Arlington	67,540	74,913	79,067	82,535	82,156	82,306
Grand Prairie (through Arlington)	0	4,484	4,484	4,484	4,484	4,484
Bethesda WSC	0	1,489	1,833	2,214	2,678	3,266
Azle	1,953	2,633	3,602	4,697	5,849	6,860
Benbrook	4,409	6,140	6,721	7,984	9,489	11,254
Bridgeport	1,361	1,899	2,702	3,187	3,713	4,444
Community WSC	444	438	433	422	426	435
Decatur	1,639	2,011	2,748	3,537	4,580	5,385
East Cedar Creek FWSD	1,698	1,866	2,215	2,382	2,580	2,777
Gun Barrel City	704	977	1,104	1,243	1,411	1,632
Fort Worth	173,064	214,926	258,772	313,677	384,126	471,992
Aledo	0	456	1,031	1,605	1,712	1,712
Bethesda WSC	3,483	2,978	3,666	4,428	5,357	6,533
Burleson	5,248	7,676	9,462	9,550	9,749	10,062
Crowley	1,238	1,548	2,049	2,881	3,547	3,893
Dalworthington Gardens	505	550	581	596	608	618
Denton County-Other	445	579	663	743	825	908
Edgecliff	460	451	443	434	428	428
Everman	239	266	244	222	215	215
Forest Hill	1,492	1,584	1,671	1,776	1,912	2,008
Grand Prairie (through Fort Worth)	1,121	1,121	1,121	1,121	1,121	1,121
Haltom City	6,521	7,835	8,142	8,231	8,272	8,324
Haslet	663	1,434	2,576	2,568	2,561	2,561
Hurst	6,708	6,991	6,854	6,716	6,670	6,670
Keller	9,124	10,138	11,495	11,380	11,380	11,380
Kennedale	86	425	587	698	768	823
Lake Worth	585	665	757	845	945	999
North Richland Hills	3,516	3,917	4,193	4,357	4,475	4,574
Watauga	3,437	3,532	3,500	3,416	3,388	3,388
Northlake	268	404	467	898	1,329	1,599
Richland Hills	865	919	979	1,049	1,096	1,118
Roanoke	1,498	2,474	3,280	4,090	5,529	6,755
Saginaw	3,161	3,755	4,176	4,489	4,705	4,885
Sansom Park Village	51	57	57	53	56	63
Southlake (Tarrant & Denton Co)	9,321	9,826	9,949	10,514	11,259	11,855
Tarrant County Other	1,885	1,805	1,751	1,671	1,644	1,644
Trophy Club	2,077	2,420	2,707	2,962	3,249	3,536
Westover Hills	276	274	272	270	268	268
Westworth Village	350	412	426	442	470	519
White Settlement	1,524	1,640	1,735	1,824	2,024	2,246
Gun Barrel City		652	736	828	941	1,088
Kemp	224	267	307	300	296	296
Mabank (Henderson & Kaufman Co.)	671	801	931	1,083	1,269	1,507

Tarrant Regional WaterDistrict
-Values in Acre-Feet per Year-

Gun Barrel City	704	0	0	0	0	0
Malakoff	174	180	186	191	202	217
Mansfield	13,632	19,020	24,481	29,385	33,043	36,701
Grand Prairie (through Mansfield)	0	6,726	6,726	6,726	6,726	6,726
Johnson County SUD (through Mansfield)	1,682	3,363	6,726	6,726	6,726	6,726
Reno (thru Springtown & Walnut Creek SUD)	152	154	155	154	160	170
River Oaks	1,010	986	954	931	923	923
Runaway Bay	296	356	430	489	547	608
Springtown	268	423	571	725	877	1,036
Trinity River Authority						
Bedford	9,029	9,338	9,556	9,699	9,908	10,137
Colleyville	7,324	8,391	8,328	8,297	8,265	8,265
Ennis	See Ennis Total Below					
Community Water Company (Ellis County) from Ennis						
Rice WSC from Ennis						
Ellis County Other from Ennis						
Ennis share of Ellis County Manufacturing (10%)						
Ennis share of Ellis County Steam Electric						
Ennis Total	0	1,119	2,539	3,922	3,891	5,439
Ferris	174	220	268	328	403	473
Grapevine	9,551	10,717	12,167	12,344	12,503	12,666
Euless	8,314	9,376	9,774	9,924	9,993	10,064
North Richland Hills	8,747	9,682	10,327	10,710	10,985	11,215
Midlothian	See Midlothian Total Below					
Grand Prairie (through Midlothian)						
Rockett SUD						
Midlothian part of Ellis County Manufacturing (40%)						
Midlothian portion of Ellis County Steam Electric						
Midlothian Total	638	10,322	12,952	15,141	17,363	19,473
Venus (Region G)	363	358	349	344	342	342
Rockett SUD	See Rockett SUD Total Below					
Ellis County Other from Rockett SUD						
Ennis from Rockett SUD						
Oak Leaf Rockett SUD						
Lancaster from Rockett SUD						
Red Oak from Rockett SUD						
Palmer from Rockett SUD						
Pecan Hill						
Waxahachie from Rockett SUD						
Rockett SUD Total	4,292	5,534	7,063	8,314	8,978	9,109
Waxahachie						
Buena Vista Bethel SUD						
Italy						
Maypearl						

Tarrant Regional WaterDistrict
-Values in Acre-Feet per Year-

Files Valley SUD	See Waxahachie Total Below					
Waxahachie part of Ellis County-Other (12%)						
Waxhachie part of Ellis County Manufacturing (28%)						
Waxahachie part Ellis County Steam Electric						
Waxahachie Total	2,500	2,660	4,830	10,344	16,627	22,299
Walnut Creek SUD	2,606	3,794	5,895	7,222	7,631	7,922
Boyd	65	128	189	247	309	309
Rhome	347	712	1,298	1,908	2,517	3,126
New Fairview	0	51	119	188	267	358
Newark	0	63	132	249	395	618
Paradise	73	89	109	134	165	202
Sanctuary	92	216	314	370	426	478
Weatherford	2,542	3,694	4,727	5,717	6,768	7,991
Hudson Oaks	113	194	295	393	490	586
Parker County Other	0	228	230	227	213	200
Parker County SEP	24	22	28	56	75	102
West Cedar Creek MUD	1,724	2,604	3,335	4,002	4,860	5,933
Seven Points	188	222	254	288	330	385
Tool	405	452	500	548	610	695
West Wise SUD	483	524	567	618	681	756
Chico	84	111	152	209	281	371
Freestone County Other (part)	285	344	388	400	400	400
Henderson County-Other	79	77	76	74	74	74
Kaufman County-Other	416	413	410	407	404	404
Navarro County-Other	100	98	96	93	92	92
Wise County-Other	1,888	2,130	2,110	2,071	2,051	2,051
Freestone County Steam Electric	6,726	7,726	7,726	7,726	7,726	7,726
Henderson County SEP	0	0	3,950	4,950	5,950	6,950
Henderson County Mining	79	91	98	106	113	120
Jack County-SEP	2,162	2,500	2,700	2,900	3,100	3,300
Kaufman County Irrigation	100	100	100	100	100	100
50% of Navarro County manufacturing	586	664	734	803	865	936
Parker County Manufacturing	623	703	779	854	920	998
Tarrant County Manufacturing	17,258	20,444	23,630	26,924	29,919	32,457
Tarrant County Mining	536	452	469	487	504	518
Tarrant County Irrigation	5,518	4,208	4,208	4,208	4,208	4,208
Tarrant County Steam Electric Power	2,640	2,448	2,640	2,640	2,640	2,640
Wise County Irrigation	212	212	212	212	212	212
Wise County Manufacturing	2,299	2,646	2,965	3,263	3,525	3,844
Wise County Steam Electric Power	1,751	1,245	1,216	1,878	2,042	2,748
Wise County Mining	7,943	8,677	9,486	10,318	11,177	11,987
Subtotal - Existing	**448,651**	**556,835**	**651,008**	**745,886**	**850,062**	**972,817**

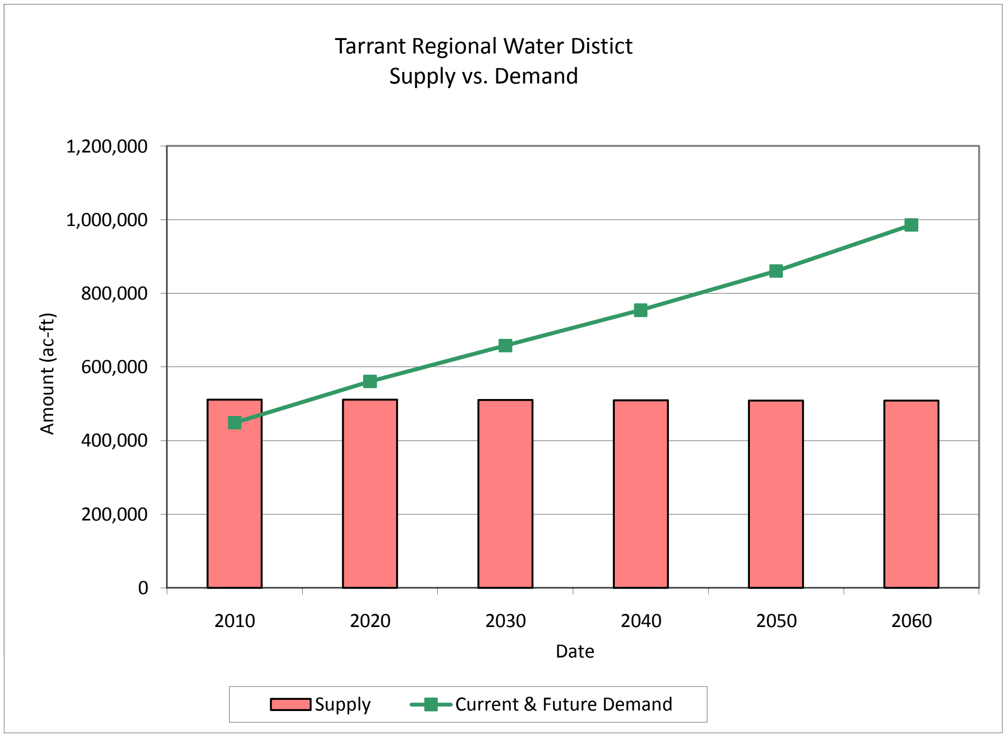
Tarrant Regional WaterDistrict
-Values in Acre-Feet per Year-

Potential Future Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Alvord (through West Wise WSC)	0	150	150	150	150	150
Alvarado (Region G)	0	444	484	521	580	658
Annetta (through Weatherford)	0	25	65	99	134	176
Annetta South (through Weatherford)	0	5	16	24	35	47
Aurora (through Rhome through Walnut Creek SUD)	0	50	50	50	50	86
Bardwell	0	17	42	69	100	135
Corsicana	See Corsicana Total Below					
Blooming Grove						
Chatfield WSC						
Community WC (Navarro County)						
Coolidge (through Post Oak SUD - Region G)						
Dawson						
Freestone County Other						
Frost						
Hill County Other (50%) (Post Oak SUD - Region G)						
Hubbard (Region G)						
Kerens						
MEN WSC						
Navarro County Other (Corsicana share)						
50% of Navarro County Manufacturing						
Navarro County Steam Electric						
Navarro Mills WSC						
Rice WSC						
Rice						
Wortham (Corsicana supply)						
Total, Corsicana and Customers	0	0	1,628	2,547	3,702	5,172
Fairfield	0	0	0	6	169	296
Mountain Peak SUD (through Midlothian)	155	586	658	856	1,224	1,701
Pantego	0	200	200	200	200	200
Pelican Bay	0	36	90	112	142	181
Sardis-Lone Elm WSC	0	2,155	2,934	2,890	2,867	2,867
Willow Park	0	177	541	800	974	1,098
Subtotal - Potential	155	3,845	6,858	8,324	10,327	12,767
Total	**448,806**	**560,680**	**657,866**	**754,210**	**860,389**	**985,584**

Tarrant Regional WaterDistrict
-Values in Acre-Feet per Year-

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
West Fork System	109,833	109,167	108,500	107,833	107,167	106,500
Benbrook Lake	6,833	6,833	6,833	6,833	6,833	6,833
Cedar Creek Lake	175,000	175,000	175,000	175,000	175,000	175,000
Richland-Chambers Reservoir	210,000	210,000	210,000	210,000	210,000	210,000
Richland-Chambers Reuse	10,000	10,000	10,000	10,000	10,000	10,000
Total	**511,666**	**511,000**	**510,333**	**509,666**	**509,000**	**508,333**

Supplies Less Current Demands	**0**	**-49,680**	**-147,533**	**-244,544**	**-351,389**	**-477,251**



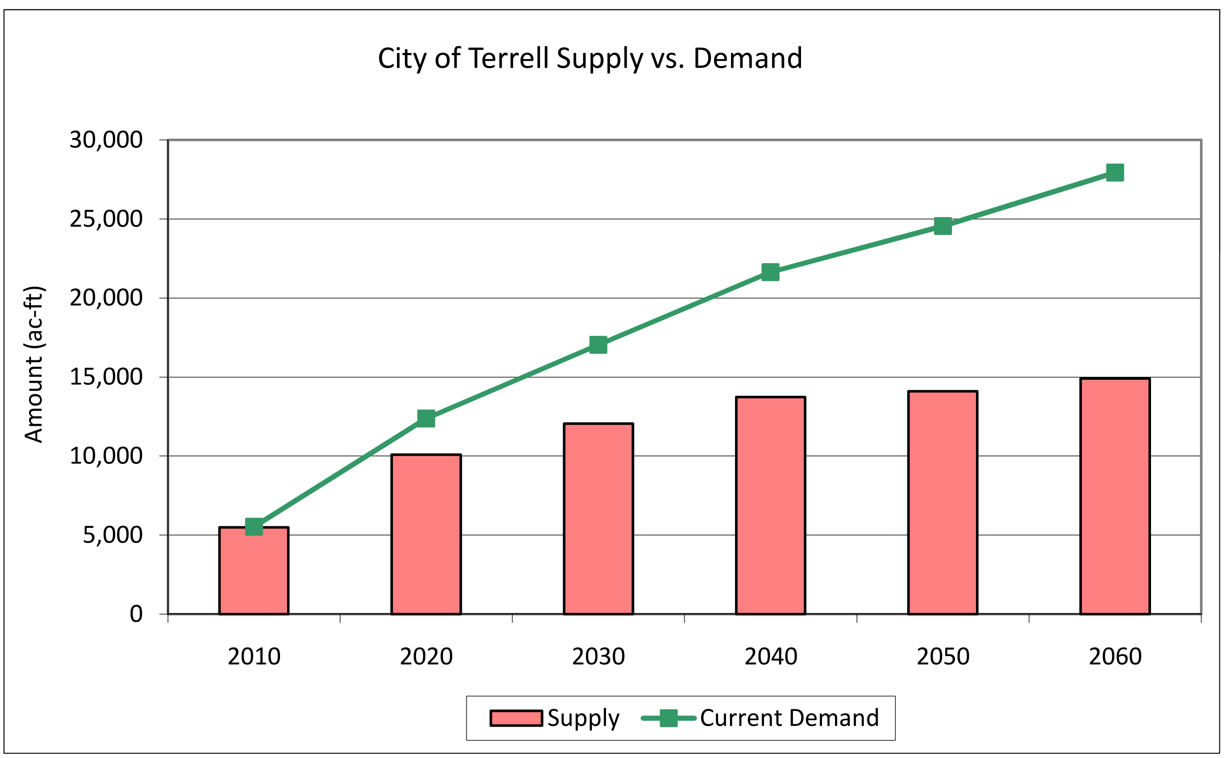
City of Terrell

-Values in Acre-Feet per Year-

WUG Demands on Terrell						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Terrell Municipal	3,807	10,385	14,780	19,138	21,731	24,643
College Mound WSC (40%)	303	462	633	741	875	1,049
High Point WSC (50%)	181	259	308	364	433	522
Hunt County Other (8%)	108	128	157	203	313	485
Kaufman County Other (40%)	833	826	820	814	808	808
Kaufman County Manufacturing (40%)	304	325	348	371	397	424
Total	**5,536**	**12,385**	**17,046**	**21,631**	**24,557**	**27,931**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
NTMWD	5,490	10,081	12,050	13,739	14,103	14,910
Total	**5,490**	**10,081**	**12,050**	**13,739**	**14,103**	**14,910**

Supplies Less Current Demands	**-46**	**-2,304**	**-4,996**	**-7,892**	**-10,454**	**-13,021**



Trinity River Authority
(Units: Acre-Feet per Year)

WUGs Demands on Trinity River Authority						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Navarro County Supplies - Direct from TRA (Navarro Mills).						
Corsicana	See Corsicana Total Below					
Blooming Grove						
Chatfield WSC						
Community WC (Navarro County)						
Coolidge (through Post Oak SUD - Region G)						
Dawson						
Freestone County Other						
Frost						
Hill County-Other (50%) (Region G)						
Hubbard (Region G)						
Kerens						
MEN WSC						
Navarro County Other (Corsicana share)						
Navarro County Manufacturing (50%)						
Navarro County Steam Electric						
Navarro Mills WSC						
Rice WSC						
Rice						
Wortham						
Corsicana Total	10,865	11,210	11,210	11,210	11,210	11,210
TXU	450	0	0	0	0	0
Ellis County Supplies - Direct from TRA (Bardwell & Joe Pool) and from TRWD through TRA.						
Ennis						
Community Water Company						
Rice WSC from Ennis						
Ellis County Other from Ennis						
Ennis Part of Ellis Co. Manufact (10%)						
Ennis Total	4,066	5,002	6,195	7,684	9,613	12,109
Ferris	174	220	268	328	403	473
Italy (by 2020)	282	330	362	397	439	489
Maypearl (by 2020)	195	238	282	276	272	272
Midlothian	3,438	6,765	9,174	11,151	13,178	15,206
Venus	363	358	349	344	342	342
Grand Prairie through Midlothian	0	7,287	7,287	7,287	7,287	7,287
Rockett SUD	All Rockett SUD demand included below					
Midlothian Part of Ellis County Manufacturing (40%)	1,386	1,468	1,536	1,595	1,636	1,565
Midlothian Part of Ellis County Steam Electric	224	224	224	224	224	224
Rockett SUD	4,713	5,985	7,436	8,636	9,240	9,320
Ellis County Other from Rockett SUD	70	70	70	70	70	70
Ennis from Rockett SUD	All Ennis demand included above					
Lancaster from Rockett SUD	90	90	90	90	90	90

Trinity River Authority
(Units: Acre-Feet per Year)

Oak Leaf from Rockett SUD	55	55	55	55	55	55
Palmer from Rockett SUD	0	2	13	24	40	42
Pecan Hill	160	183	205	228	254	285
Red Oak from Rockett SUD	118	201	246	263	281	299
Sardis Lone Elm WSC	0	2,155	2,934	2,890	2,867	2,867
Waxahachie from Rockett SUD	All Waxahachie demand included below					
Waxahachie						
Buena Vista Bethel SUD						
Waxaxhchie Part of Ellis Co Manf (28%)						
Waxahachie Part of Ellis Co Steam						
Waxahachie total	6,549	9,059	11,258	16,848	23,198	28,925
Potential Future Ellis County Customers						
Alvarado	0	444	484	521	580	658
Bardwell	0	17	42	69	100	135
Mountain Peak WSC (Rockett)	155	586	658	856	1,224	1,701
Total Ellis County	**22,038**	**40,739**	**49,168**	**59,836**	**71,393**	**82,414**

Tarrant County Project						
Bedford	9,029	9,338	9,556	9,699	9,908	10,137
Colleyville	7,324	8,391	8,328	8,297	8,265	8,265
Euless	8,314	9,376	9,774	9,924	9,993	10,064
Grapevine	9,551	10,717	12,167	12,344	12,503	12,666
North Richland Hills	8,747	9,682	10,327	10,710	10,985	11,215
Total Tarrant County Project	**42,965**	**47,504**	**50,152**	**50,974**	**51,654**	**52,347**

Reuse						
10 Mile Plant Reuse (Dallas Co. Irr.)	250	250	250	250	250	250
Dallas County Irrigation (Las Colinas)	8,000	8,000	8,000	8,000	8,000	8,000
Waxahachie	Counted above under Ellis County					
Ennis Indirect Reuse (through TRA)	0	0	0	333	2,521	3,696
Dallas County Steam Electric	0	0	6,760	6,760	6,760	6,760
Ellis County Steam Electric Reuse		0	0	0	0	1,799
Freestone County Steam Electric Reuse		0	0	0	1,508	6,672
Kaufman County Steam Electric Reuse	0	1,000	1,000	1,000	1,000	1,000
Total Reuse Demand (Not including Waxahachie)	**8,250**	**9,250**	**16,010**	**16,343**	**20,039**	**28,177**

Total Reuse with Waxhachie	**13,248**	**14,379**	**21,139**	**21,472**	**25,168**	**33,306**

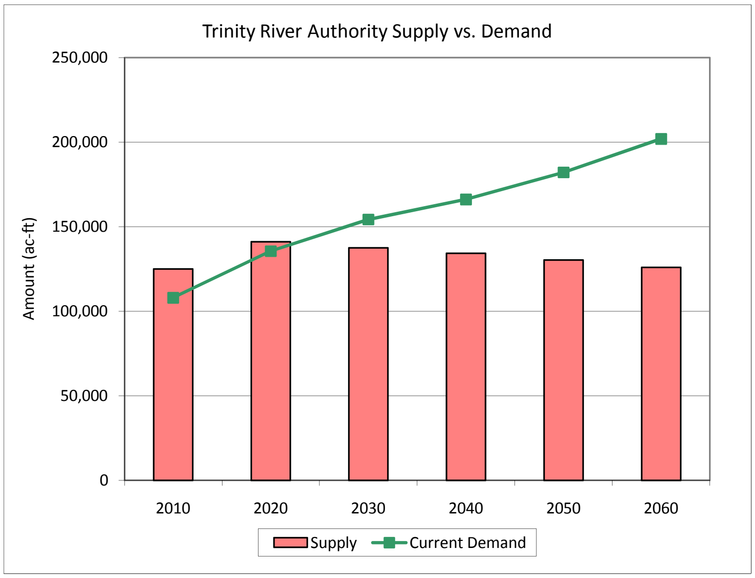
Other						
Freestone SEP (from TRWD)[a]	6,726	6,726	6,726	6,726	6,726	6,726
Freestone SEP Power (Livingston to Luminant)	16,643	19,091	20,000	20,000	20,000	20,000
Possible additional Freestone SEP from TRWD	0	1,000	1,000	1,000	1,000	1,000
Total Other	**23,369**	**26,817**	**27,726**	**27,726**	**27,726**	**27,726**

Total	**107,937**	**135,520**	**154,266**	**166,089**	**182,022**	**201,874**

Trinity River Authority
(Units: Acre-Feet per Year)

Current Supplies	2010	2020	2030	2040	2050	2060
Joe Pool Lake (Midlothian and Grand Prairie)	5,954	7,104	6,951	6,798	6,644	6,491
Joe Pool Lake (Grand Prairie Raw)	300	300	300	300	300	300
Navarro Mills Lake	19,342	18,333	17,325	16,317	15,308	14,300
Lake Bardwell	9,600	9,600	9,295	8,863	8,432	8,000
Lake Livingston	20,000	20,000	20,000	20,000	20,000	20,000
Current Reuse	13,248	13,379	13,379	13,379	13,379	13,379
Current TRWD (Tarrant Co.)	42,133	43,659	39,156	34,433	30,548	26,991
Current TRWD (East Texas)	14,323	28,620	31,110	34,086	35,644	36,361
Total	**124,900**	**140,995**	**137,516**	**134,176**	**130,255**	**125,822**

Supplies Less Current Demands	**0**	**0**	**-16,750**	**-31,913**	**-51,767**	**-76,052**



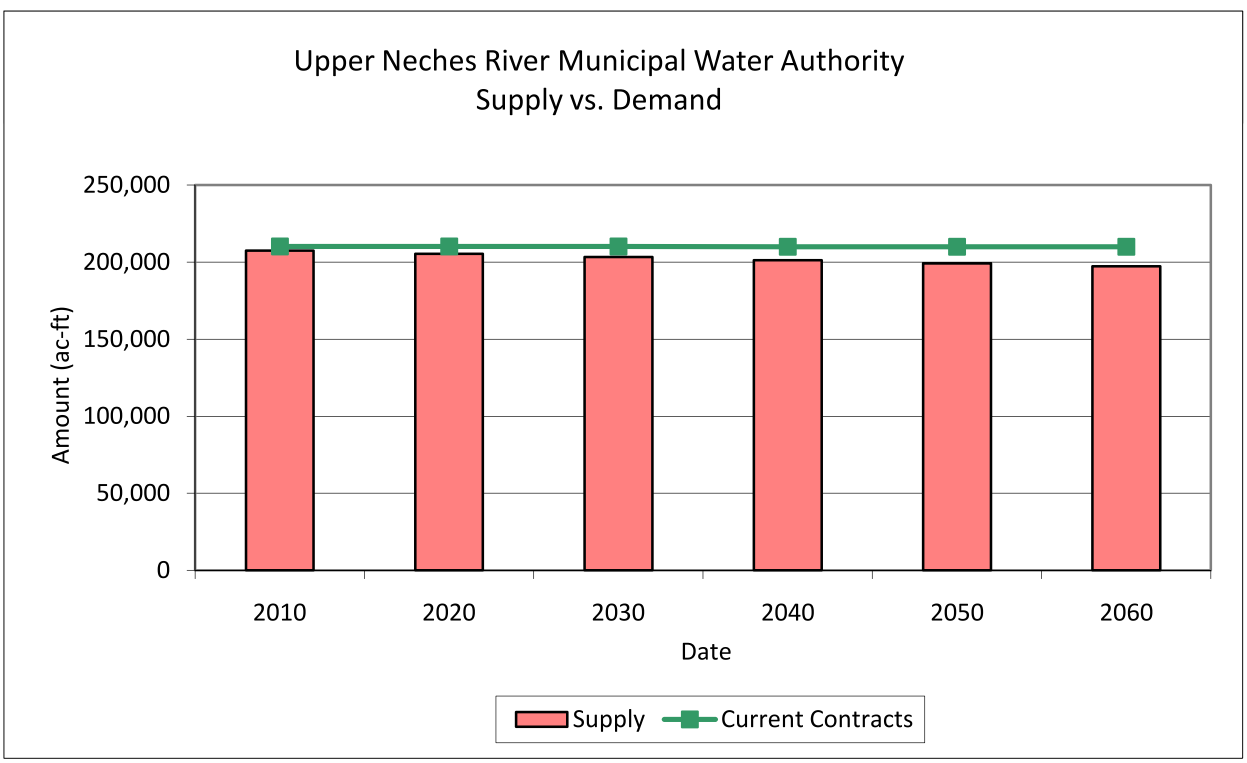
Upper Neches River Municipal Water Authority

-Values in Acre-Feet per Year-

Contracted Amounts from Upper Neches MWA						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
City of Dallas (not connected)	114,337	114,337	114,337	114,337	114,337	114,337
City of Tyler	67,200	67,200	67,200	67,200	67,200	67,200
City of Palestine	28,000	28,000	28,000	28,000	28,000	28,000
Smith County-Other (1%)	93	82	73	64	57	51
Super Tree Farm for International Paper (Cherokee County irrigation)	300	300	300	300	300	300
TECON (Henderson County-Other)	100	100	100	100	100	100
Emerald Bay Golf Course (Smith County irrigation)	105	105	105	105	105	105
Total	**210,135**	**210,124**	**210,115**	**210,106**	**210,099**	**210,093**

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Lake Palestine	207,458	205,417	203,375	201,333	199,292	197,250
Total	**207,458**	**205,417**	**203,375**	**201,333**	**199,292**	**197,250**

Supplies Less Current Contracts	**-2,677**	**-4,708**	**-6,740**	**-8,773**	**-10,808**	**-12,843**



Upper Trinity Regional Water District

-Values in Acre-Feet per Year-

WUG Demands on Upper Trinity Regional Water District						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Argyle WSC						
Argyle						
Total for Argyle WSC	1,823	3,494	4,855	5,396	6,016	6,639
Aubrey	105	564	1,111	1,586	2,241	3,110
Bartonville WSC						
Bartonville						
Copper Canyon						
Double Oak						
Total for Bartonville WSC	1,213	1,979	2,224	2,370	2,520	2,671
Bolivar WSC						
Sanger						
Total for Bolivar WSC	814	2,011	4,614	8,805	13,364	17,518
Celina	741	4,237	9,629	17,652	29,905	35,379
Corinth	4,665	5,269	5,679	6,085	6,519	6,845
Denton County Other	6,110	8,642	10,484	12,240	14,022	15,851
Denton County FWSD NO. 1A	892	1,059	1,428	1,812	2,202	2,609
Flower Mound	8,662	12,754	19,765	19,765	19,765	19,765
Highland Village	2,631	2,998	3,310	3,413	3,503	3,613
Justin	437	862	1,479	2,516	3,113	3,461
Krum	213	294	389	496	646	810
Ladonia	0	257	427	523	655	863
Lake Cities MUA						
Hickory Creek						
Lake Dallas						
Shady Shores						
Total for Lake Cities MUA	2,151	2,781	3,191	3,454	3,470	3,501
Lincoln Park	69	99	125	152	179	214
Mustang SUD						
Cross Roads						
Krugerville						
Oak Point						
Total for Mustang SUD	1,123	3,151	4,447	6,572	8,753	10,963
Northlake	0	404	467	898	1,329	1,598
Pilot Point	0	284	1,139	1,397	1,607	1,831
Ponder	0	617	1,549	2,666	3,150	3,270
Prosper	100	2,160	3,779	5,669	6,209	6,749
Denton County Mining	550	263	263	263	263	263
Denton County Manufacturing	179	301	288	278	294	329
Total Demands	32,478	54,480	80,642	104,008	129,725	147,852
Losses in Treatment and Delivery (5%)	1,624	2,724	4,032	5,200	6,486	7,393
Denton County Irrigation	800	900	1,000	1,100	1,200	1,300
Total Needed	**34,902**	**58,104**	**85,674**	**110,308**	**137,411**	**156,545**

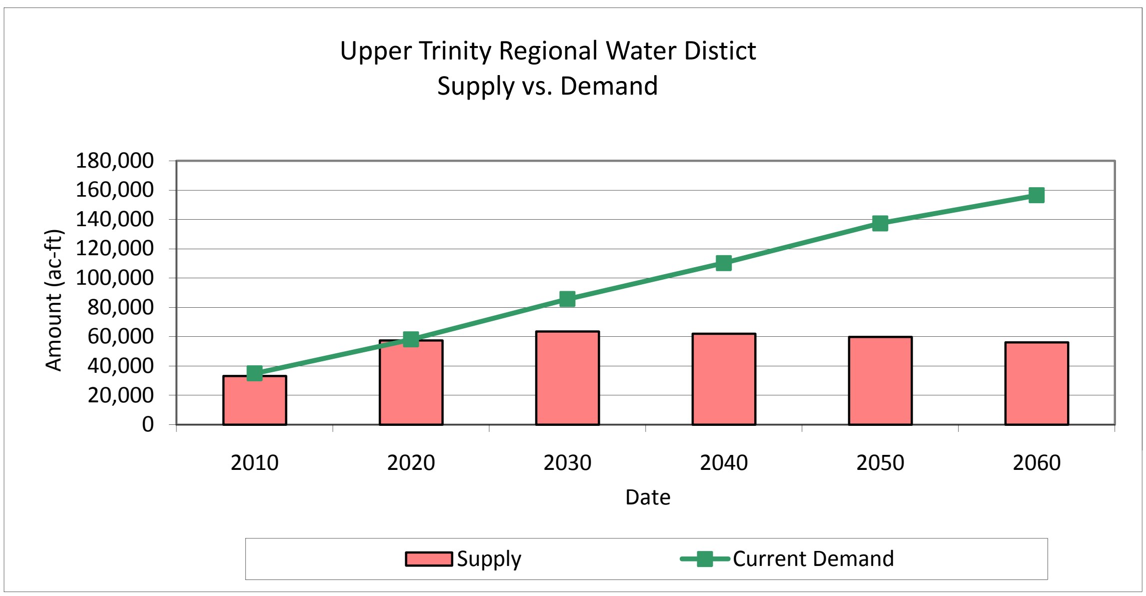
Upper Trinity Regional Water District

-Values in Acre-Feet per Year-

Current Supply	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
DWU*	8,290	36,549	42,664	41,267	39,087	35,226
Denton	4,069	0	0	0	0	0
Chapman	13,268	13,268	13,268	13,268	13,268	13,268
Chapman Reuse	6,634	6,634	6,634	6,634	6,634	6,634
Direct Reuse	897	897	897	897	897	897
Total	**33,158**	**57,348**	**63,463**	**62,066**	**59,886**	**56,025**

Supplies Less Demands	**-1,744**	**-756**	**-22,211**	**-48,242**	**-77,525**	**-100,520**

* Under the existing contracts, UTRWD is entitled to 38,815 acre-feet per year from Dallas in 2010. However, given limited Dallas supplies in 2010 and other supplies available to UTRWD, a supply of 9,000 af/y (current 8,290 ac-ft/ yr + strategy of 710 ac-ft/y) from Dallas to UTRWD is assumed for 2010.



Walnut Creek SUD

-Values in Acre-Feet per Year-

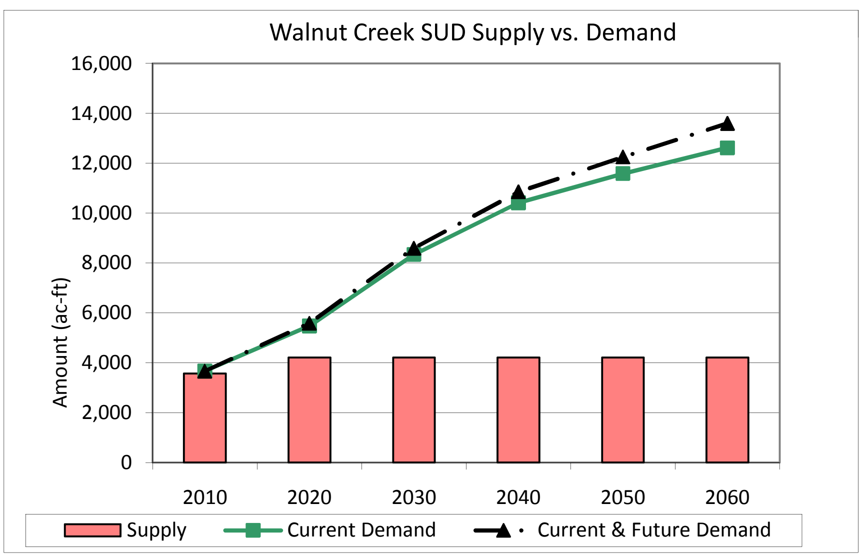
WUG Demand on Walnut Creek SUD						
WUG Demands	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Walnut Creek SUD	2,606	3,794	5,895	7,222	7,631	7,922
Boyd	65	128	189	247	309	309
Paradise	73	89	109	134	165	202
Rhome	347	712	1,298	1,908	2,517	3,126
Aurora	0	50	50	50	50	86
Sanctuary	92	216	314	370	426	478
West Wise Rural SUD	404	404	404	404	404	404
Reno	76	77	78	77	80	85
Total	**3,663**	**5,470**	**8,337**	**10,412**	**11,582**	**12,612**

Potential Future Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
New Fairview	0	51	119	188	267	358
Newark	0	63	132	249	395	618
Total	**0**	**114**	**251**	**437**	**662**	**976**

Total Current & Future Demand	**3,663**	**5,584**	**8,588**	**10,849**	**12,244**	**13,588**

Current Supplies	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
TRWD Sources	3,575	5,124	6,694	7,320	7,233	6,999
Total Limited WTP Capacity	**3,575**	**4,204**	**4,204**	**4,204**	**4,204**	**4,204**

Supplies Less Current Demands	**-88**	**-1,266**	**-4,133**	**-6,208**	**-7,378**	**-8,408**
Supplies Less Current & Future Demand	**-88**	**-1,380**	**-4,384**	**-6,645**	**-8,040**	**-9,384**

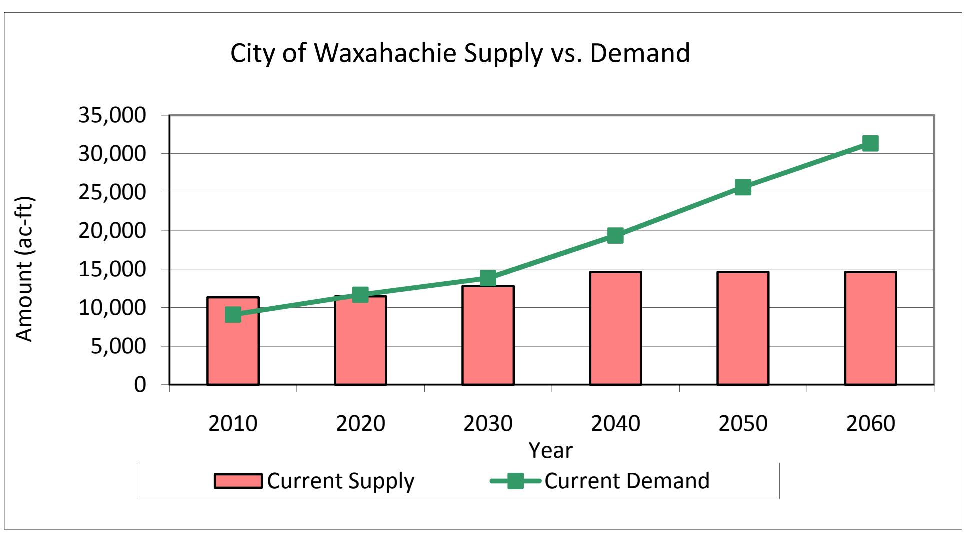


City of Waxahachie
-Values in Acre-Feet per Year-

WUG Demands on Waxahachie						
WUGs	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Waxahachie Municipal	6,855	8,781	10,330	13,090	16,672	21,341
Ellis County Other	242	240	237	236	235	235
Ellis County Manufacturing	970	1,028	1,075	1,116	1,145	1,095
Buena Vista-Bethel SUD	1,043	1,466	1,967	2,536	3,158	3,836
Ellis County Steam Electric	0	0	0	2,116	4,129	4,454
Subtotal	9,110	11,515	13,609	19,094	25,339	30,961
Italy	0	43	75	110	152	202
Maypearl	0	23	67	61	57	57
Subtotal	9,110	11,581	13,751	19,265	25,548	31,220
Files Valley WSC (Net)	0	100	100	100	100	100
Total	**9,110**	**11,681**	**13,851**	**19,365**	**25,648**	**31,320**

	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Rockett SUD Supplies (for Rockett Retail Connections)	613	613	613	613	613	613
Lake Bardwell	4,320	4,320	4,183	3,988	3,794	3,600
Lake Waxahachie	2,905	2,800	2,695	2,590	2,485	2,380
Reuse	4,998	5,129	5,129	5,129	5,129	5,129
TRWD through TRA for Sokol	2,325	2,440	3,765	6,978	9,822	11,487
Sokol Plant (Waxahachie share 10 mgd)	2,325	2,440	3,765	5,605	5,605	5,605
Total	**15,161**	**15,302**	**16,385**	**17,925**	**17,626**	**17,327**
WTP Capacity (15 MGD)	**11,346**	**11,461**	**12,786**	**14,626**	**14,626**	**14,626**

Supplies Less Current Demands	**0**	**-220**	**-1,065**	**-4,739**	**-11,022**	**-16,694**



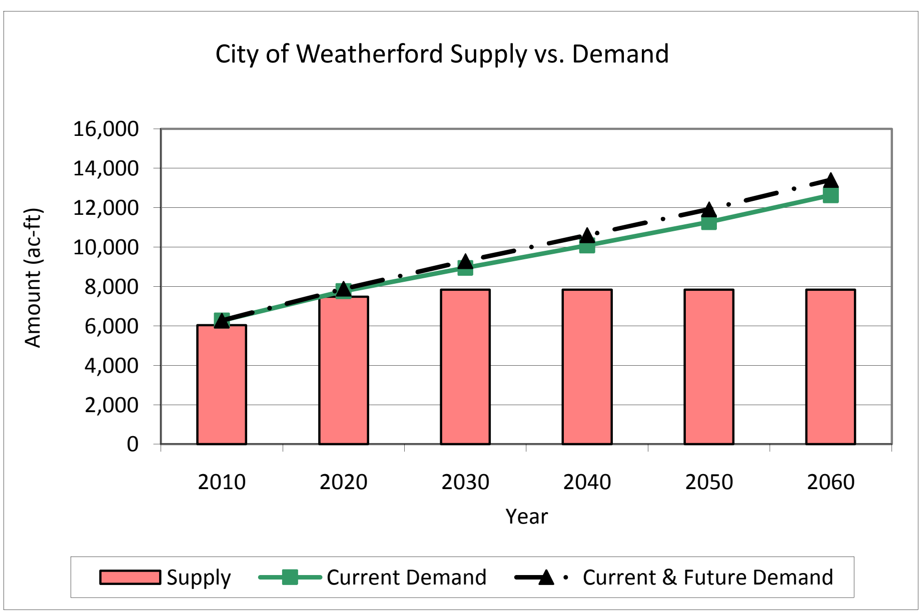
City of Weatherford

-Values in Acre-Feet per Year-

WUG Demands on Weatherford						
WUGs Demands	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Weatherford	5,509	6,617	7,607	8,554	9,561	10,741
Hudson Oaks	113	194	295	393	490	586
Parker County-Other	0	228	230	227	213	200
Parker County Manufacturing	623	703	779	854	920	998
Parker Co SEP (Brazos Electric Co-op)	24	22	28	56	75	102
SubTotal	**6,269**	**7,764**	**8,939**	**10,084**	**11,259**	**12,627**
Potential Future Customers	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Annetta	0	25	65	99	134	176
Annetta South	0	5	16	24	35	47
Willow Park	0	89	271	400	487	549
SubTotal	0	119	352	523	656	772
Total	**6,269**	**7,883**	**9,291**	**10,607**	**11,915**	**13,399**

Current Supplies	2010	2020	2030	2040	2050	2060
Lake Weatherford	2,967	2,923	2,880	2,837	2,793	2,750
TRWD	3,076	4,550	4,998	5,243	5,389	5,486
Total	**6,043**	**7,473**	**7,878**	**8,080**	**8,182**	**8,236**
WTP Capacity (14 MGD)	**6,043**	**7,473**	**7,840**	**7,840**	**7,840**	**7,840**

Supplies Less Current & Future Demands	**-226**	**-410**	**-1,451**	**-2,767**	**-4,075**	**-5,559**

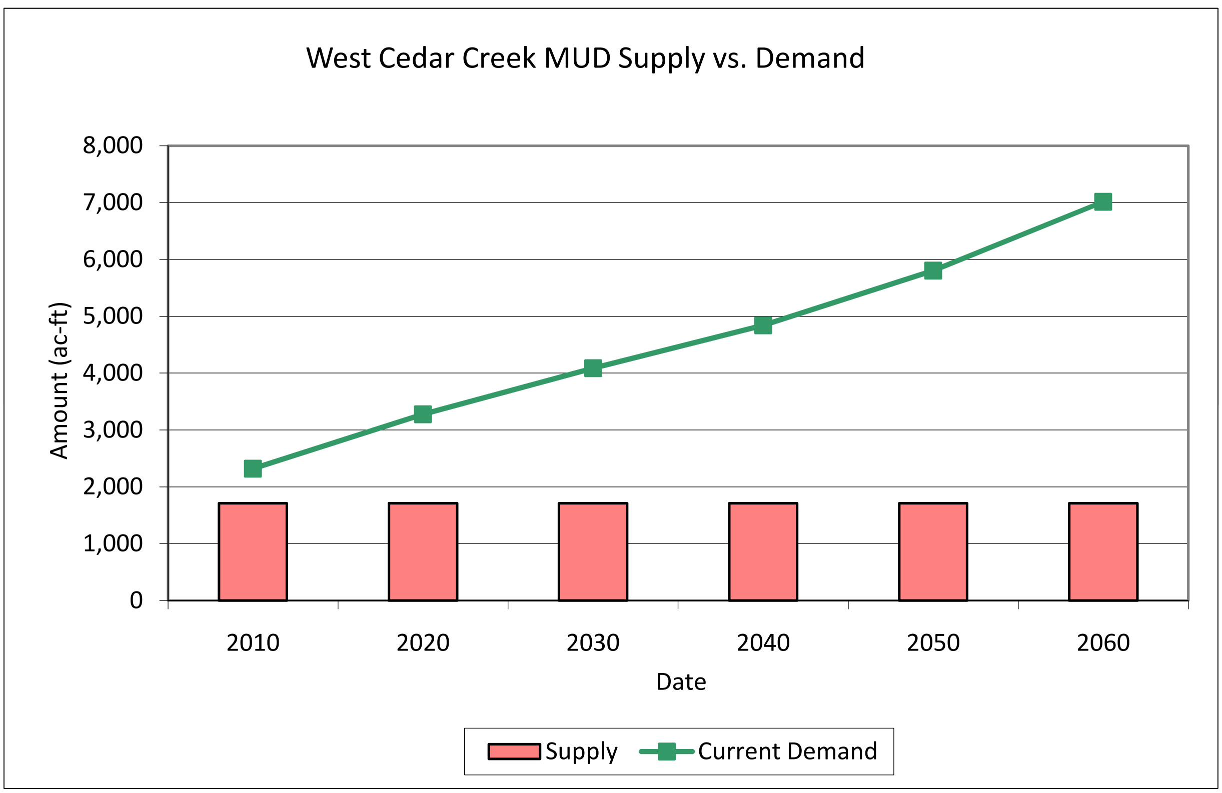


West Cedar Creek MUD
-Values in Acre-Feet per Year-

WUG Demands on West Cedar Creek MUD						
WUG	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
West Cedar Creek MUD	1,724	2,604	3,335	4,002	4,860	5,933
Seven Points	188	222	254	288	330	385
Tool	405	452	500	548	610	695
Total	**2,317**	**3,278**	**4,089**	**4,838**	**5,800**	**7,013**

Current Supply	2010	2020	2030	2040	2050	2060
TRWD Sources (contract limit)	1,714	1,714	1,714	1,714	1,714	1,714
Total	**1,714**	**1,714**	**1,714**	**1,714**	**1,714**	**1,714**

Supplies Less Current Demands	**-603**	**-1,564**	**-2,375**	**-3,124**	**-4,086**	**-5,299**



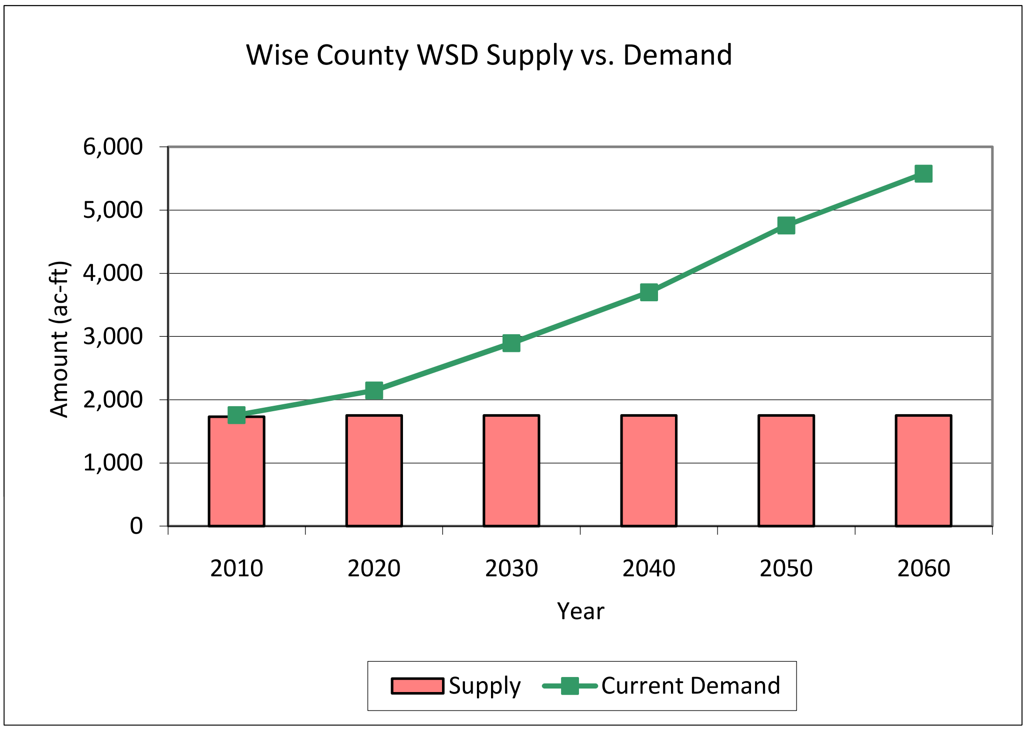
Wise County WSD

-Values in Acre-Feet per Year-

WUG Demands on Wise County WSD						
WUGs	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Decatur	1,639	2,011	2,748	3,537	4,580	5,385
Wise County Manufacturing (3%)	116	133	149	164	177	193
Total	**1,755**	**2,144**	**2,897**	**3,701**	**4,757**	**5,578**

Current Supplies	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Tarrant Regional Water District	1,730	1,754	1,754	1,754	1,754	1,754
Total	**1,730**	**1,754**	**1,754**	**1,754**	**1,754**	**1,754**

Supplies Less Current Demands	**-25**	**-390**	**-1,143**	**-1,947**	**-3,003**	**-3,824**



Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
ARGYLE WSC	ARGYLE	DENTON	TRINITY	1,227	2,902	4,217	4,710	5,271	5,827
ARGYLE WSC	ARGYLE WSC	DENTON	TRINITY	1,263	1,259	1,239	1,219	1,212	1,212
ARLINGTON CITY OF	ARLINGTON	TARRANT	TRINITY	77,597	85,215	89,219	92,537	92,008	92,008
ARLINGTON CITY OF	BETHESDA WSC	TARRANT	TRINITY	0	1,489	1,833	2,214	2,678	3,266
ARLINGTON CITY OF	GRAND PRAIRIE	TARRANT	TRINITY	0	4,484	4,484	4,484	4,484	4,484
ARLINGTON CITY OF	MANUFACTURING	TARRANT	TRINITY	2,589	3,067	3,545	4,039	4,488	4,869
ARLINGTON CITY OF	PANTEGO	TARRANT	TRINITY	0	100	100	100	100	100
ATHENS MWA	ATHENS	HENDERSON	TRINITY	2,107	2,590	3,174	3,843	4,718	5,797
ATHENS MWA	ATHENS	HENDERSON	NECHES	77	107	136	163	199	246
ATHENS MWA	IRRIGATION	HENDERSON	NECHES	159	164	169	174	179	185
ATHENS MWA	LIVESTOCK	HENDERSON	NECHES	3,023	3,023	3,023	3,023	3,023	3,023
ATHENS MWA	MANUFACTURING	HENDERSON	TRINITY	100	106	120	136	155	176
BARTONVILLE WSC	BARTONVILLE	DENTON	TRINITY	282	943	1,042	1,042	1,042	1,042
BARTONVILLE WSC	BARTONVILLE WSC	DENTON	TRINITY	307	347	380	410	439	466
BARTONVILLE WSC	COPPER CANYON	DENTON	TRINITY	357	432	507	582	661	740
BARTONVILLE WSC	DOUBLE OAK	DENTON	TRINITY	716	706	699	696	692	692
BOLIVAR WSC	BOLIVAR WSC	COOKE	TRINITY	205	244	286	285	285	285
BOLIVAR WSC	BOLIVAR WSC	DENTON	TRINITY	887	1,221	2,782	6,138	9,975	13,504
BOLIVAR WSC	BOLIVAR WSC	WISE	TRINITY	187	238	303	441	612	918
BOLIVAR WSC	SANGER	DENTON	TRINITY	759	1,571	2,392	2,933	3,328	3,490
CORSICANA CITY OF	BLOOMING GROVE	NAVARRO	TRINITY	161	157	155	152	150	150
CORSICANA CITY OF	CHATFIELD WSC	NAVARRO	TRINITY	428	726	935	1,153	1,378	1,655
CORSICANA CITY OF	CORSICANA	NAVARRO	TRINITY	6,200	6,381	6,564	6,763	7,083	7,518
CORSICANA CITY OF	COMMUNITY WATER COMPANY	NAVARRO	TRINITY	106	157	193	237	293	366
CORSICANA CITY OF	COOLIDGE	LIMESTONE	TRINITY	37	37	37	37	37	37
CORSICANA CITY OF	CORSICANA	NAVARRO	TRINITY	0	0	0	0	0	0
CORSICANA CITY OF	DAWSON	NAVARRO	TRINITY	177	185	195	204	219	238
CORSICANA CITY OF	COUNTY-OTHER	FREESTONE	TRINITY	0	225	225	225	225	225
CORSICANA CITY OF	FROST	NAVARRO	TRINITY	69	67	66	63	63	63
CORSICANA CITY OF	COUNTY-OTHER	HILL	TRINITY	353	353	353	353	353	353
CORSICANA CITY OF	HUBBARD	HILL	TRINITY	194	188	183	177	173	173
CORSICANA CITY OF	KERENS	NAVARRO	TRINITY	460	453	447	440	436	436
CORSICANA CITY OF	M E N WSC	NAVARRO	TRINITY	441	471	510	542	571	621
CORSICANA CITY OF	MANUFACTURING	NAVARRO	TRINITY	586	664	734	804	865	936
CORSICANA CITY OF	STEAM ELECTRIC POWER	NAVARRO	TRINITY	0	8,000	13,440	13,440	13,440	13,440
CORSICANA CITY OF	COUNTY-OTHER	NAVARRO	TRINITY	150	146	143	140	137	137
CORSICANA CITY OF	NAVARRO MILLS WSC	NAVARRO	TRINITY	329	442	500	577	663	754
CORSICANA CITY OF	RICE	NAVARRO	TRINITY	229	265	304	347	398	463
CORSICANA CITY OF	RICE WSC	NAVARRO	TRINITY	945	1,167	1,409	1,650	1,966	2,347
CORSICANA CITY OF	WORTHAM	FREESTONE	TRINITY	0	300	300	300	300	300
DALLAS CITY OF	ADDISON	DALLAS	TRINITY	7,904	10,074	10,919	11,514	11,918	12,218
DALLAS CITY OF	BALCH SPRINGS	DALLAS	TRINITY	2,621	2,730	2,805	2,852	2,934	3,028
DALLAS CITY OF	CARROLLTON	DALLAS	TRINITY	10,804	10,740	10,792	10,783	10,834	10,946
DALLAS CITY OF	CARROLLTON	DENTON	TRINITY	15,083	15,373	15,980	16,282	16,522	16,686
DALLAS CITY OF	CEDAR HILL	DALLAS	TRINITY	9,818	14,065	16,421	16,995	16,995	16,995
DALLAS CITY OF	CEDAR HILL	ELLIS	TRINITY	11	11	10	10	10	10
DALLAS CITY OF	COCKRELL HILL	DALLAS	TRINITY	653	687	681	670	667	668
DALLAS CITY OF	COMBINE	DALLAS	TRINITY	100	126	136	148	165	188
DALLAS CITY OF	COMBINE	KAUFMAN	TRINITY	182	230	269	315	372	447
DALLAS CITY OF	COMBINE WSC	DALLAS	TRINITY	156	221	250	279	319	373
DALLAS CITY OF	COMBINE WSC	KAUFMAN	TRINITY	306	467	605	756	949	1,189
DALLAS CITY OF	COPPELL	DALLAS	TRINITY	11,425	11,336	11,246	11,201	11,157	11,157
DALLAS CITY OF	COPPELL	DENTON	TRINITY	119	164	201	233	260	283
DALLAS CITY OF	COUNTY-OTHER	DALLAS	TRINITY	95	73	55	40	30	23
DALLAS CITY OF	CRANDALL	KAUFMAN	TRINITY	0	347	601	672	1,037	1,490
DALLAS CITY OF	DALLAS	COLLIN	TRINITY	16,086	17,766	18,650	19,146	19,449	20,005

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
DALLAS CITY OF	DALLAS	DALLAS	TRINITY	351,267	373,694	390,189	414,835	458,576	539,023
DALLAS CITY OF	DALLAS	DENTON	TRINITY	7,489	7,955	8,134	8,203	8,237	8,270
DALLAS CITY OF	DALLAS	ROCKWALL	TRINITY	6	6	6	6	6	6
DALLAS CITY OF	DE SOTO	DALLAS	TRINITY	10,355	12,375	14,162	15,807	17,741	18,271
DALLAS CITY OF	DENTON	DENTON	TRINITY	0	0	7,051	18,243	31,801	58,323
DALLAS CITY OF	DENTON COUNTY FWSD #1A	DENTON	TRINITY	99	522	704	892	1,084	1,285
DALLAS CITY OF	DUNCANVILLE	DALLAS	TRINITY	7,605	7,563	7,522	7,439	7,356	7,356
DALLAS CITY OF	DALLAS	DALLAS	TRINITY	0	0	0	0	0	0
DALLAS CITY OF	DALLAS	DALLAS	TRINITY	0	0	0	0	0	0
DALLAS CITY OF	FARMERS BRANCH	DALLAS	TRINITY	11,229	12,109	12,883	13,603	14,286	14,945
DALLAS CITY OF	FLOWER MOUND	DENTON	TRINITY	8,662	10,435	12,320	12,320	12,320	12,320
DALLAS CITY OF	GLENN HEIGHTS	DALLAS	TRINITY	1,046	1,189	1,359	1,523	1,670	1,820
DALLAS CITY OF	GLENN HEIGHTS	ELLIS	TRINITY	361	485	602	724	858	1,014
DALLAS CITY OF	GRAND PRAIRIE	DALLAS	TRINITY	19,793	14,778	19,228	23,567	28,250	28,586
DALLAS CITY OF	GRAND PRAIRIE	ELLIS	TRINITY	74	185	516	890	1,329	1,343
DALLAS CITY OF	GRAND PRAIRIE	TARRANT	TRINITY	3,946	1,211	1,590	1,702	1,654	1,304
DALLAS CITY OF	GRAPEVINE	TARRANT	TRINITY	3,864	3,565	3,530	3,153	2,887	2,697
DALLAS CITY OF	HEBRON	DENTON	TRINITY	114	111	110	109	109	109
DALLAS CITY OF	HUTCHINS	DALLAS	TRINITY	821	1,008	1,255	1,624	2,123	3,497
DALLAS CITY OF	IRRIGATION	DALLAS	TRINITY	8,768	8,768	8,768	8,768	8,768	8,768
DALLAS CITY OF	IRRIGATION	COLLIN	TRINITY	2,950	2,950	2,950	2,950	2,950	2,950
DALLAS CITY OF	IRRIGATION	DENTON	TRINITY	2,400	2,400	2,400	2,400	2,400	2,400
DALLAS CITY OF	IRRIGATION	ROCKWALL	TRINITY	277	277	277	277	277	277
DALLAS CITY OF	IRVING	DALLAS	TRINITY	15,765	18,750	4,000	4,000	4,000	4,000
DALLAS CITY OF	LANCASTER	DALLAS	TRINITY	5,614	8,665	9,346	9,273	9,273	9,273
DALLAS CITY OF	LEWISVILLE	DALLAS	TRINITY	1	1	1	1	1	1
DALLAS CITY OF	LEWISVILLE	DENTON	TRINITY	19,262	21,316	23,505	26,050	29,516	33,612
DALLAS CITY OF	MANUFACTURING	DALLAS	TRINITY	24,904	27,587	30,038	32,276	34,093	34,298
DALLAS CITY OF	MANUFACTURING	DENTON	TRINITY	427	496	563	632	692	752
DALLAS CITY OF	MINING	DALLAS	TRINITY	298	304	303	303	303	303
DALLAS CITY OF	OAK LEAF	ELLIS	TRINITY	283	338	393	448	512	585
DALLAS CITY OF	OVILLA	DALLAS	TRINITY	68	116	182	293	429	630
DALLAS CITY OF	OVILLA	ELLIS	TRINITY	868	1,378	1,861	2,299	2,299	2,299
DALLAS CITY OF	RED OAK	ELLIS	TRINITY	1,893	3,419	4,430	5,006	5,331	5,687
DALLAS CITY OF	SEAGOVILLE	DALLAS	TRINITY	2,082	2,538	3,014	3,473	3,881	4,180
DALLAS CITY OF	SEAGOVILLE	KAUFMAN	TRINITY	3	4	5	7	9	11
DALLAS CITY OF	STEAM ELECTRIC POWER	DALLAS	TRINITY	3,367	4,290	5,000	5,000	5,000	5,000
DALLAS CITY OF	THE COLONY	DENTON	TRINITY	5,185	7,000	7,748	7,929	8,105	8,178
DALLAS CITY OF	COUNTY-OTHER (UTRWD)	DENTON	TRINITY	10,000	46,290	56,656	58,438	60,066	72,848
DALLAS CITY OF	WILMER	DALLAS	TRINITY	121	205	290	552	1,309	2,241
DALLAS COUNTY PARK CITIES N	HIGHLAND PARK	DALLAS	TRINITY	4,255	4,266	4,274	4,278	4,289	4,319
DALLAS COUNTY PARK CITIES N	UNIVERSITY PARK	DALLAS	TRINITY	7,799	7,896	7,940	7,946	7,983	8,030
DALLAS COUNTY PARK CITIES N	IRRIGATION (REUSE)	DALLAS	TRINITY	3,317	3,696	3,964	4,142	4,276	4,386
DALLAS COUNTY WCID #6	BALCH SPRINGS	DALLAS	TRINITY	2,621	2,730	2,805	2,852	2,934	3,028
DENTON CITY OF	DENTON	DENTON	TRINITY	24,612	34,884	45,594	58,158	71,679	98,275
DENTON CITY OF	IRRIGATION	DENTON	TRINITY	401	401	401	401	401	401
DENTON CITY OF	MANUFACTURING	DENTON	TRINITY	481	558	634	711	779	846
DENTON CITY OF	STEAM ELECTRIC POWER	DENTON	TRINITY	644	744	844	944	1,044	1,144
EAST CEDAR CREEK FWSD	EAST CEDAR CREEK FWSD	HENDERSON	TRINITY	1,698	1,866	2,215	2,382	2,580	2,777
EAST CEDAR CREEK FWSD	GUN BARREL CITY	HENDERSON	TRINITY	704	977	1,104	1,243	1,411	1,632
ENNIS CITY OF	BARDWELL	ELLIS	TRINITY	0	17	42	69	100	135
ENNIS CITY OF	ENNIS	ELLIS	TRINITY	3,497	4,358	5,504	6,949	8,834	11,308
ENNIS CITY OF	COMMUNITY WATER COMPANY	ELLIS	TRINITY	116	171	201	230	264	304
ENNIS CITY OF	COUNTY-OTHER	ELLIS	TRINITY	56	56	56	56	56	56
ENNIS CITY OF	MANUFACTURING	ELLIS	TRINITY	347	367	384	399	409	391
ENNIS CITY OF	RICE WSC	ELLIS	TRINITY	50	50	50	50	50	50
ENNIS CITY OF	STEAM ELECTRIC POWER	ELLIS	TRINITY	1,401	1,401	1,401	1,401	1,401	1,401

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
FORNEY CITY OF	COUNTY-OTHER	KAUFMAN	TRINITY	170	169	168	167	165	165
FORNEY CITY OF	COUNTY-OTHER	KAUFMAN	SABINE	38	38	37	37	37	37
FORNEY CITY OF	FORNEY	KAUFMAN	TRINITY	2,097	4,033	4,973	5,763	6,422	7,048
FORNEY CITY OF	HIGH POINT WSC	KAUFMAN	TRINITY	165	234	278	328	389	470
FORNEY CITY OF	HIGH POINT WSC	ROCKWALL	TRINITY	16	25	31	37	44	53
FORNEY CITY OF	MANUFACTURING	KAUFMAN	TRINITY	456	488	521	557	596	637
FORNEY CITY OF	STEAM ELECTRIC POWER	KAUFMAN	TRINITY	8,979	10,000	10,000	10,000	10,000	10,000
FORNEY CITY OF	TALTY	KAUFMAN	TRINITY	813	1,717	2,337	3,024	3,878	4,948
FORT WORTH CITY OF	ALEDO	PARKER	TRINITY	0	456	1,031	1,605	1,712	1,712
FORT WORTH CITY OF	ARLINGTON	TARRANT	TRINITY	207	602	602	602	602	602
FORT WORTH CITY OF	BETHESDA WSC	TARRANT	TRINITY	3,483	2,978	3,666	4,428	5,357	6,533
FORT WORTH CITY OF	BURLESON	TARRANT	TRINITY	799	989	1190	1397	1653	1967
FORT WORTH CITY OF	BURLESON	JOHNSON	TRINITY	4449	6687	8272	8153	8096	8095
FORT WORTH CITY OF	COUNTY-OTHER	DENTON	TRINITY	445	579	663	743	825	908
FORT WORTH CITY OF	COUNTY-OTHER	TARRANT	TRINITY	1,885	1,805	1,751	1,671	1,644	1,644
FORT WORTH CITY OF	CROWLEY	TARRANT	TRINITY	1,238	1,548	2,049	2,881	3,547	3,893
FORT WORTH CITY OF	DALWORTHINGTON GARDENS	TARRANT	TRINITY	505	550	581	596	608	618
FORT WORTH CITY OF	EDGECLIFF	TARRANT	TRINITY	460	451	443	434	428	428
FORT WORTH CITY OF	EULESS	TARRANT	TRINITY	368	368	368	368	368	368
FORT WORTH CITY OF	EVERMAN	TARRANT	TRINITY	239	266	244	222	215	215
FORT WORTH CITY OF	FOREST HILL	TARRANT	TRINITY	1,492	1,584	1,671	1,776	1,912	2,008
FORT WORTH CITY OF	FORT WORTH	DENTON	TRINITY	1,387	8,409	12,809	18,393	25,802	33,069
FORT WORTH CITY OF	FORT WORTH	PARKER	TRINITY	3,327	14,576	22,772	26,034	28,518	30,423
FORT WORTH CITY OF	FORT WORTH	TARRANT	TRINITY	170,244	194,624	231,783	281,252	340,384	417,660
FORT WORTH CITY OF	FORT WORTH	WISE	TRINITY	555	2,803	3,985	5,094	6,518	7,936
FORT WORTH CITY OF	COUNTY-OTHER	TARRANT	TRINITY	0	0	0	0	0	0
FORT WORTH CITY OF	GRAND PRAIRIE	TARRANT	TRINITY	1,121	1,121	1,121	1,121	1,121	1,121
FORT WORTH CITY OF	HALTOM CITY	TARRANT	TRINITY	6,521	7,835	8,142	8,231	8,272	8,324
FORT WORTH CITY OF	HASLET	TARRANT	TRINITY	663	1,434	2,576	2,568	2,561	2,561
FORT WORTH CITY OF	HURST	TARRANT	TRINITY	6,708	6,991	6,854	6,716	6,670	6,670
FORT WORTH CITY OF	IRRIGATION	TARRANT	TRINITY	0	0	0	0	0	0
FORT WORTH CITY OF	KELLER	TARRANT	TRINITY	9,124	10,138	11,495	11,380	11,380	11,380
FORT WORTH CITY OF	KENNEDALE	TARRANT	TRINITY	86	425	587	698	768	823
FORT WORTH CITY OF	LAKE WORTH	TARRANT	TRINITY	585	665	757	845	945	999
FORT WORTH CITY OF	MANUFACTURING	TARRANT	TRINITY	14,497	17,173	19,849	22,616	25,132	27,264
FORT WORTH CITY OF	MANUFACTURING	WISE	TRINITY	0	0	0	0	0	0
FORT WORTH CITY OF	NORTH RICHLAND HILLS	TARRANT	TRINITY	3,516	3,917	4,193	4,357	4,475	4,574
FORT WORTH CITY OF	NORTHLAKE	DENTON	TRINITY	268	404	467	898	1,329	1,599
FORT WORTH CITY OF	PANTEGO	TARRANT	TRINITY	0	100	100	100	100	100
FORT WORTH CITY OF	RICHLAND HILLS	TARRANT	TRINITY	865	919	979	1,049	1,096	1,118
FORT WORTH CITY OF	ROANOKE	DENTON	TRINITY	1,498	2,474	3,280	4,090	5,529	6,755
FORT WORTH CITY OF	SAGINAW	TARRANT	TRINITY	3,161	3,755	4,176	4,489	4,705	4,885
FORT WORTH CITY OF	SANSOM PARK VILLAGE	TARRANT	TRINITY	51	57	57	53	56	63
FORT WORTH CITY OF	SOUTHLAKE	DENTON	TRINITY	262	451	619	825	1,215	1,307
FORT WORTH CITY OF	SOUTHLAKE	TARRANT	TRINITY	9,059	9,375	9,330	9,689	10,044	10,548
FORT WORTH CITY OF	TROPHY CLUB	DENTON	TRINITY	2,077	2,420	2,707	2,962	3,249	3,536
FORT WORTH CITY OF	WATAUGA	TARRANT	TRINITY	3,437	3,532	3,500	3,416	3,388	3,388
FORT WORTH CITY OF	WESTOVER HILLS	TARRANT	TRINITY	276	274	272	270	268	268
FORT WORTH CITY OF	WESTWORTH VILLAGE	TARRANT	TRINITY	350	412	426	442	470	519
FORT WORTH CITY OF	WHITE SETTLEMENT	TARRANT	TRINITY	1,524	1,640	1,735	1,824	2,024	2,246
FORT WORTH CITY OF	WILLOW PARK	PARKER	TRINITY	0	88	270	400	487	549
GAINESVILLE CITY OF	BOLIVAR WSC	COOKE	TRINITY	0	18	83	104	127	149
GAINESVILLE CITY OF	COUNTY-OTHER	COOKE	RED	0	28	28	28	28	28
GAINESVILLE CITY OF	COUNTY-OTHER	COOKE	TRINITY	0	97	97	97	97	97
GAINESVILLE CITY OF	GAINESVILLE	COOKE	RED	2	2	2	2	2	2
GAINESVILLE CITY OF	GAINESVILLE	COOKE	TRINITY	3,385	3,744	4,169	4,576	5,025	5,520
GAINESVILLE CITY OF	COUNTY-OTHER	COOKE	TRINITY	0	0	0	0	0	0
GAINESVILLE CITY OF	IRRIGATION	COOKE	RED	0	45	45	45	45	45
GAINESVILLE CITY OF	IRRIGATION	COOKE	TRINITY	0	25	25	25	25	25

Region C Wholesale Water Provider Demand by County and Basin
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Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
GAINESVILLE CITY OF	IRRIGATION	COOKE	TRINITY	9	9	9	9	9	9
GAINESVILLE CITY OF	KIOWA HOMEOWNERS WSC	COOKE	TRINITY	0	100	100	100	100	100
GAINESVILLE CITY OF	LINDSAY	COOKE	TRINITY	0	40	50	50	50	50
GAINESVILLE CITY OF	MANUFACTURING	COOKE	TRINITY	223	255	243	265	283	306
GAINESVILLE CITY OF	MINING	COOKE	RED	0	78	53	56	59	61
GAINESVILLE CITY OF	MINING	COOKE	TRINITY	0	96	55	55	56	57
GAINESVILLE CITY OF	VALLEY VIEW	COOKE	TRINITY	0	150	400	650	1,200	1,600
GAINESVILLE CITY OF	WOODBINE WSC	COOKE	RED	0	1	1	2	3	3
GAINESVILLE CITY OF	WOODBINE WSC	COOKE	TRINITY	0	39	79	118	167	227
GAINESVILLE CITY OF	IRRIGATION	GRAYSON	RED	0	70	70	70	70	70
GAINESVILLE CITY OF	MINING	GRAYSON	RED	0	24	27	31	34	37
GARLAND CITY OF	STEAM ELECTRIC POWER	DALLAS	TRINITY	67	86	238	240	240	240
GARLAND CITY OF	GARLAND	DALLAS	TRINITY	42,484	42,055	42,789	42,462	42,190	42,190
GARLAND CITY OF	FORNEY	KAUFMAN	TRINITY	8,979	8,979	8,979	8,979	8,979	8,979
GARLAND CITY OF	MANUFACTURING	DALLAS	TRINITY	3,070	3,401	3,703	3,979	4,203	4,228
GARLAND CITY OF	STEAM ELECTRIC POWER	COLLIN	TRINITY	771	715	1,000	1,200	1,600	2,000
GRAND PRAIRIE CITY OF	JOHNSON COUNTY SUD	TARRANT	TRINITY	0	6,726	6,726	6,726	6,726	6,726
GRAND PRAIRIE CITY OF	GRAND PRAIRIE CITY OF	DALLAS	TRINITY	22,992	25,889	29,848	33,980	38,514	38,514
GRAND PRAIRIE CITY OF	GRAND PRAIRIE CITY OF	ELLIS	TRINITY	74	329	809	1,302	1,842	1,842
GRAND PRAIRIE CITY OF	GRAND PRAIRIE CITY OF	TARRANT	TRINITY	6,068	7,048	7,769	7,969	7,969	7,969
GRAND PRAIRIE CITY OF	IRRIGATION	DALLAS	TRINITY	300	300	300	300	300	300
GREATER TEXOMA UTILITY AUT	ANNA	COLLIN	TRINITY	1,441	2,736	4,187	5,653	7,329	12,356
GREATER TEXOMA UTILITY AUT	BELLS	GRAYSON	RED	0	80	150	210	260	300
GREATER TEXOMA UTILITY AUT	COLLINSVILLE	GRAYSON	TRINITY	0	100	200	300	400	500
GREATER TEXOMA UTILITY AUT	COUNTY-OTHER	GRAYSON	RED	66	751	838	1,013	1,188	1,537
GREATER TEXOMA UTILITY AUT	COUNTY-OTHER	GRAYSON	TRINITY	9	109	122	147	172	223
GREATER TEXOMA UTILITY AUT	COUNTY-OTHER	GRAYSON	RED	0	0	0	0	0	0
GREATER TEXOMA UTILITY AUT	GUNTER	GRAYSON	TRINITY	0	180	350	530	700	820
GREATER TEXOMA UTILITY AUT	HOWE	GRAYSON	RED	51	60	71	85	89	91
GREATER TEXOMA UTILITY AUT	HOWE	GRAYSON	TRINITY	235	413	649	883	1,031	1,157
GREATER TEXOMA UTILITY AUT	LUELLA WSC	GRAYSON	TRINITY	0	38	80	140	150	220
GREATER TEXOMA UTILITY AUT	MANUFACTURING	GRAYSON	RED	5,219	5,927	6,563	7,155	7,635	8,384
GREATER TEXOMA UTILITY AUT	MARILEE SUD	COLLIN	TRINITY	125	150	349	483	740	975
GREATER TEXOMA UTILITY AUT	MARILEE SUD	GRAYSON	TRINITY	0	0	51	167	260	375
GREATER TEXOMA UTILITY AUT	MELISSA	COLLIN	TRINITY	138	4,303	6,858	10,084	14,386	15,901
GREATER TEXOMA UTILITY AUT	POTTSBORO	GRAYSON	RED	560	840	1,160	1,430	1,710	1,835
GREATER TEXOMA UTILITY AUT	SHERMAN	GRAYSON	RED	2,535	3,694	5,150	6,802	9,040	12,258
GREATER TEXOMA UTILITY AUT	SOUTH GRAYSON WSC	GRAYSON	TRINITY	0	100	100	175	275	400
GREATER TEXOMA UTILITY AUT	SOUTHMAYD	GRAYSON	RED	0	40	100	220	400	525
GREATER TEXOMA UTILITY AUT	STEAM ELECTRIC POWER	GRAYSON	RED	3,360	5,378	7,396	7,396	7,396	7,396
GREATER TEXOMA UTILITY AUT	STEAM ELECTRIC POWER	GRAYSON	TRINITY	2,240	3,585	4,930	4,930	4,930	4,930
GREATER TEXOMA UTILITY AUT	TIOGA	GRAYSON	TRINITY	0	225	375	425	475	500
GREATER TEXOMA UTILITY AUT	TOM BEAN	GRAYSON	RED	0	1	6	11	18	19
GREATER TEXOMA UTILITY AUT	TOM BEAN	GRAYSON	TRINITY	0	9	34	64	102	111
GREATER TEXOMA UTILITY AUT	TWO WAY SUD	GRAYSON	RED	0	129	227	325	423	520
GREATER TEXOMA UTILITY AUT	TWO WAY SUD	GRAYSON	TRINITY	0	71	123	175	227	280
GREATER TEXOMA UTILITY AUT	VAN ALSTYNE	GRAYSON	TRINITY	58	965	2,064	2,696	2,973	3,103
GREATER TEXOMA UTILITY AUT	WHITESBORO	GRAYSON	RED	0	32	101	138	246	495
GREATER TEXOMA UTILITY AUT	WHITESBORO	GRAYSON	TRINITY	0	18	49	62	104	205
GREATER TEXOMA UTILITY AUT	WHITEWRIGHT	GRAYSON	RED	0	200	400	600	750	900
LAKE CITIES MUNICIPAL UTILITY	HICKORY CREEK	DENTON	TRINITY	753	1,004	1,158	1,405	1,405	1,405
LAKE CITIES MUNICIPAL UTILITY	LAKE DALLAS	DENTON	TRINITY	1,354	1,580	1,702	1,691	1,680	1,680
LAKE CITIES MUNICIPAL UTILITY	SHADY SHORES	DENTON	TRINITY	357	510	613	608	604	604
MANSFIELD CITY OF	JOHNSON COUNTY SUD	TARRANT	TRINITY	1,682	3,363	6,726	6,726	6,726	6,726
MANSFIELD CITY OF	MANSFIELD	ELLIS	TRINITY	123	263	459	699	1,040	1,623
MANSFIELD CITY OF	MANSFIELD	TARRANT	TRINITY	13,342	18,590	23,854	28,520	31,834	34,889
MANSFIELD CITY OF	MANSFIELD	JOHNSON	TRINITY	167	167	168	166	169	189

Region C Wholesale Water Provider Demand by County and Basin
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Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
MANSFIELD CITY OF	MANUFACTURING	TARRANT	TRINITY	173	204	236	269	299	325
MANSFIELD CITY OF	GRAND PRAIRIE CITY OF	DALLAS	TRINITY	0	6,726	6,726	6,726	6,726	6,726
MIDLOTHIAN CITY OF	ALVARADO	JOHNSON	TRINITY	0	444	484	521	580	658
MIDLOTHIAN CITY OF	VENUS	JOHNSON	TRINITY	363	358	349	344	342	342
MIDLOTHIAN CITY OF	GRAND PRAIRIE	DALLAS	TRINITY	0	7,287	7,287	7,287	7,287	7,287
MIDLOTHIAN CITY OF	MANUFACTURING	ELLIS	TRINITY	1,386	1,468	1,536	1,595	1,636	1,565
MIDLOTHIAN CITY OF	MIDLOTHIAN	ELLIS	TRINITY	3,438	6,765	9,174	11,151	13,178	15,206
MIDLOTHIAN CITY OF	MOUNTAIN PEAK SUD	ELLIS	TRINITY	155	586	658	856	1,224	1,701
MIDLOTHIAN CITY OF	ROCKETT SUD	ELLIS	TRINITY	1,926	2,242	2,242	2,242	2,242	2,242
MIDLOTHIAN CITY OF	STEAM ELECTRIC POWER	ELLIS	TRINITY	224	224	224	224	224	224
MUSTANG SUD	CROSS ROADS	DENTON	TRINITY	575	1,234	1,230	1,230	1,230	1,230
MUSTANG SUD	KRUGERVILLE	DENTON	TRINITY	204	228	257	331	428	613
MUSTANG SUD	MUSTANG SUD	DENTON	TRINITY	921	1,474	1,939	3,623	5,323	6,949
MUSTANG SUD	OAK POINT	DENTON	TRINITY	585	1,377	2,067	2,318	2,585	2,868
NORTH RICHLAND HILLS CITY O	MANUFACTURING	TARRANT	TRINITY	345	409	473	538	598	649
NORTH RICHLAND HILLS CITY O	NORTH RICHLAND HILLS	TARRANT	TRINITY	12,496	13,832	14,753	15,300	15,693	16,022
NORTH RICHLAND HILLS CITY O	WATAUGA	TARRANT	TRINITY	3,437	3,532	3,500	3,416	3,388	3,388
PRINCETON	PRINCETON	COLLIN	TRINITY	1,329	2,657	3,871	6,452	10,753	16,130
PRINCETON	CULLEOKA WSC	COLLIN	TRINITY	908	1,350	1,625	1,883	2,185	2,506
NORTH TEXAS MWD	ABLES SPRINGS WSC	KAUFMAN	TRINITY	0	845	1,054	1,299	1,644	2,090
NORTH TEXAS MWD	ALLEN	COLLIN	TRINITY	20,207	24,699	27,663	27,694	27,694	27,694
NORTH TEXAS MWD	ANNA	COLLIN	TRINITY	1,441	2,736	4,187	5,653	7,329	12,356
NORTH TEXAS MWD	BLACKLAND WSC	ROCKWALL	SABINE	338	490	590	700	839	1,004
NORTH TEXAS MWD	BLACKLAND WSC	ROCKWALL	TRINITY	145	209	252	299	358	429
NORTH TEXAS MWD	BLUE RIDGE	COLLIN	TRINITY	0	365	893	1,569	2,342	2,651
NORTH TEXAS MWD	BONHAM	FANNIN	RED	2,348	2,527	3,172	4,337	5,881	7,253
NORTH TEXAS MWD	CADDO BASIN SUD	COLLIN	SABINE	415	517	644	774	909	1,054
NORTH TEXAS MWD	CADDO BASIN SUD	COLLIN	TRINITY	192	239	298	358	420	487
NORTH TEXAS MWD	CADDO BASIN SUD	HUNT	SABINE	597	738	942	1,279	2,033	3,214
NORTH TEXAS MWD	CADDO BASIN SUD	HUNT	TRINITY	6	7	9	12	20	32
NORTH TEXAS MWD	CASH SUD	ROCKWALL	SABINE	14	24	46	103	179	205
NORTH TEXAS MWD	CASH SUD	HUNT	SABINE	632	776	964	1,243	1,613	1,587
NORTH TEXAS MWD	CELINA	COLLIN	TRINITY	0	1,338	2,677	4,461	4,461	4,461
NORTH TEXAS MWD	CELINA	DENTON	TRINITY	0	162	323	539	539	539
NORTH TEXAS MWD	COLLEGE MOUND WSC	KAUFMAN	TRINITY	758	1,155	1,582	1,853	2,187	2,623
NORTH TEXAS MWD	COUNTY-OTHER	COLLIN	SABINE	6	6	5	4	4	4
NORTH TEXAS MWD	COUNTY-OTHER	COLLIN	TRINITY	403	365	333	302	273	248
NORTH TEXAS MWD	COUNTY-OTHER	KAUFMAN	SABINE	379	377	374	371	368	368
NORTH TEXAS MWD	COUNTY-OTHER	KAUFMAN	TRINITY	1,078	1,069	1,062	1,054	1,046	1,046
NORTH TEXAS MWD	COUNTY-OTHER	ROCKWALL	SABINE	247	247	247	246	246	246
NORTH TEXAS MWD	COUNTY-OTHER	ROCKWALL	TRINITY	138	138	138	137	137	137
NORTH TEXAS MWD	COUNTY-OTHER	HUNT	SABINE	68	79	96	123	186	285
NORTH TEXAS MWD	COUNTY-OTHER	HUNT	SULPHUR	38	47	58	75	120	190
NORTH TEXAS MWD	COUNTY-OTHER	HUNT	TRINITY	2	3	3	4	6	10
NORTH TEXAS MWD	COUNTY-OTHER	FANNIN	TRINITY	213	413	596	768	705	659
NORTH TEXAS MWD	CRANDALL	KAUFMAN	TRINITY	730	657	657	872	872	872
NORTH TEXAS MWD	CULLEOKA WSC	COLLIN	TRINITY	908	1,350	1,625	1,883	2,185	2,506
NORTH TEXAS MWD	DANVILLE WSC	COLLIN	TRINITY	845	1,153	1,417	1,693	1,990	2,306
NORTH TEXAS MWD	EAST FORK SUD	COLLIN	TRINITY	1,116	1,252	1,373	1,507	1,643	1,802
NORTH TEXAS MWD	EAST FORK SUD	DALLAS	TRINITY	115	118	120	123	126	132
NORTH TEXAS MWD	EAST FORK SUD	ROCKWALL	TRINITY	8	8	8	8	8	8
NORTH TEXAS MWD	ECTOR	FANNIN	RED	0	9	33	57	59	62
NORTH TEXAS MWD	FAIRVIEW	COLLIN	TRINITY	3,469	3,992	5,012	6,593	6,593	6,593
NORTH TEXAS MWD	FARMERSVILLE	COLLIN	TRINITY	627	1,176	1,680	2,520	3,696	5,041
NORTH TEXAS MWD	FATE	ROCKWALL	TRINITY	1,045	1,984	2,471	2,921	3,248	3,472
NORTH TEXAS MWD	FATE	ROCKWALL	SABINE	1,046	1,984	2,472	2,921	3,248	3,473

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
NORTH TEXAS MWD	FORNEY	KAUFMAN	TRINITY	2,097	4,033	4,973	5,763	6,422	7,048
NORTH TEXAS MWD	FORNEY LAKE WSC	KAUFMAN	TRINITY	771	847	1,048	1,296	1,611	2,014
NORTH TEXAS MWD	FORNEY LAKE WSC	ROCKWALL	TRINITY	605	847	1,048	1,296	1,611	2,014
NORTH TEXAS MWD	FRISCO	COLLIN	TRINITY	23,730	33,111	37,779	44,906	51,012	51,012
NORTH TEXAS MWD	FRISCO	DENTON	TRINITY	12,423	12,559	21,311	27,427	32,098	32,098
NORTH TEXAS MWD	GARLAND	DALLAS	TRINITY	42,484	42,055	42,789	42,462	42,190	42,190
NORTH TEXAS MWD	GASTONIA-SCURRY SUD	KAUFMAN	TRINITY	771	1,104	1,262	1,506	1,840	2,255
NORTH TEXAS MWD	HACKBERRY	DENTON	TRINITY	69	137	202	231	246	253
NORTH TEXAS MWD	HEATH	ROCKWALL	TRINITY	1,952	2,727	3,393	4,116	4,964	5,980
NORTH TEXAS MWD	HIGH POINT WSC	KAUFMAN	TRINITY	330	467	555	655	778	939
NORTH TEXAS MWD	HIGH POINT WSC	ROCKWALL	TRINITY	32	50	61	73	87	105
NORTH TEXAS MWD	HONEY GROVE	FANNIN	RED	0	23	65	111	136	162
NORTH TEXAS MWD	HONEY GROVE	FANNIN	SULPHUR	0	73	203	349	428	509
NORTH TEXAS MWD	HOWE	GRAYSON	TRINITY	286	473	720	968	1,120	1,248
NORTH TEXAS MWD	IRRIGATION	COLLIN	TRINITY	1,847	1,847	1,847	1,847	1,847	1,847
NORTH TEXAS MWD	IRRIGATION	KAUFMAN	TRINITY	1,987	1,805	1,805	1,805	1,805	1,805
NORTH TEXAS MWD	IRRIGATION	ROCKWALL	TRINITY	848	848	848	848	848	848
NORTH TEXAS MWD	JOSEPHINE	COLLIN	TRINITY	256	343	411	495	574	660
NORTH TEXAS MWD	JOSEPHINE	HUNT	SABINE	3	3	4	4	6	8
NORTH TEXAS MWD	KAUFMAN	KAUFMAN	TRINITY	1,322	1,716	2,013	2,264	2,511	3,029
NORTH TEXAS MWD	LAVON WSC	COLLIN	TRINITY	293	873	1,276	1,855	2,637	3,596
NORTH TEXAS MWD	LAVON WSC	ROCKWALL	TRINITY	266	873	1,138	1,142	1,159	1,419
NORTH TEXAS MWD	LEONARD	FANNIN	SULPHUR	0	1	5	11	18	23
NORTH TEXAS MWD	LEONARD	FANNIN	TRINITY	0	75	261	576	889	1,143
NORTH TEXAS MWD	LITTLE ELM	DENTON	TRINITY	4,035	5,365	6,652	7,625	7,625	7,625
NORTH TEXAS MWD	LOWRY CROSSING	COLLIN	TRINITY	366	458	541	554	551	551
NORTH TEXAS MWD	LUCAS	COLLIN	TRINITY	1,032	1,533	1,828	2,344	3,327	4,537
NORTH TEXAS MWD	MANUFACTURING	COLLIN	TRINITY	3,280	3,810	4,327	4,843	5,306	5,788
NORTH TEXAS MWD	MANUFACTURING	DALLAS	TRINITY	6,482	7,180	7,818	8,401	8,874	8,927
NORTH TEXAS MWD	MANUFACTURING	DENTON	TRINITY	53	62	70	79	87	94
NORTH TEXAS MWD	MANUFACTURING	FANNIN	RED	73	82	90	98	105	114
NORTH TEXAS MWD	MANUFACTURING	GRAYSON	TRINITY	70	78	85	91	96	104
NORTH TEXAS MWD	MANUFACTURING	KAUFMAN	TRINITY	760	813	869	928	993	1,061
NORTH TEXAS MWD	MANUFACTURING	ROCKWALL	SABINE	8	9	10	12	13	15
NORTH TEXAS MWD	MANUFACTURING	ROCKWALL	TRINITY	12	14	16	17	19	20
NORTH TEXAS MWD	MCKINNEY	COLLIN	TRINITY	34,366	53,767	73,929	94,092	102,157	102,157
NORTH TEXAS MWD	MCLENDON-CHISHOLM	ROCKWALL	TRINITY	272	296	320	347	396	467
NORTH TEXAS MWD	MELISSA	COLLIN	TRINITY	699	4,864	7,419	10,645	14,947	16,462
NORTH TEXAS MWD	MESQUITE	DALLAS	TRINITY	26,245	30,312	33,874	34,469	34,521	34,532
NORTH TEXAS MWD	MESQUITE	KAUFMAN	TRINITY	0	0	0	0	0	0
NORTH TEXAS MWD	MILLIGAN WSC	COLLIN	TRINITY	202	196	191	185	183	183
NORTH TEXAS MWD	MINING	COLLIN	TRINITY	146	146	146	146	146	146
NORTH TEXAS MWD	MT ZION WSC	ROCKWALL	TRINITY	442	436	430	425	421	421
NORTH TEXAS MWD	MURPHY	COLLIN	TRINITY	4,234	8,556	8,556	8,556	8,556	8,556
NORTH TEXAS MWD	NEVADA	COLLIN	SABINE	177	352	421	836	1,393	3,484
NORTH TEXAS MWD	NEVADA	COLLIN	TRINITY	70	176	210	418	697	1,742
NORTH TEXAS MWD	NEW HOPE	COLLIN	TRINITY	267	383	632	944	1,416	3,148
NORTH TEXAS MWD	NORTH COLLIN WSC	COLLIN	TRINITY	876	1,116	1,321	1,525	1,757	2,005
NORTH TEXAS MWD	COUNTY-OTHER	COLLIN	TRINITY	0	0	0	0	0	0
NORTH TEXAS MWD	OAK GROVE	KAUFMAN	TRINITY	124	148	172	201	236	283
NORTH TEXAS MWD	PARKER	COLLIN	TRINITY	1,494	4,078	5,950	9,669	14,132	19,338
NORTH TEXAS MWD	PLANO	COLLIN	TRINITY	73,602	74,618	75,125	75,386	75,642	75,921
NORTH TEXAS MWD	PLANO	DENTON	TRINITY	1,606	2,210	2,193	2,184	2,176	2,176
NORTH TEXAS MWD	POST OAK BEND CITY	KAUFMAN	TRINITY	85	138	226	369	602	982
NORTH TEXAS MWD	PRINCETON	COLLIN	TRINITY	1,329	2,657	3,871	6,452	10,753	16,130
NORTH TEXAS MWD	PROSPER	COLLIN	TRINITY	1,998	1,943	3,401	4,541	8,519	8,999
NORTH TEXAS MWD	PROSPER	DENTON	TRINITY	0	1,296	2,268	3,288	4,169	4,499
NORTH TEXAS MWD	R-C-H WSC	ROCKWALL	TRINITY	642	911	919	918	912	912
NORTH TEXAS MWD	RICHARDSON	COLLIN	TRINITY	6,925	10,588	10,550	10,435	10,359	10,359
NORTH TEXAS MWD	RICHARDSON	DALLAS	TRINITY	25,458	25,535	25,443	25,167	24,984	24,984
NORTH TEXAS MWD	ROCKWALL	ROCKWALL	TRINITY	9,855	17,597	21,596	25,162	25,826	25,826
NORTH TEXAS MWD	ROWLETT	DALLAS	TRINITY	10,129	12,242	13,964	15,326	16,301	17,236

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
NORTH TEXAS MWD	ROWLETT	ROCKWALL	TRINITY	1,490	1,489	1,483	1,475	1,458	1,458
NORTH TEXAS MWD	ROYSE CITY	COLLIN	SABINE	286	858	1,676	2,514	3,351	4,307
NORTH TEXAS MWD	ROYSE CITY	ROCKWALL	SABINE	2,215	3,564	4,283	5,275	6,210	7,214
NORTH TEXAS MWD	SACHSE	COLLIN	TRINITY	1,055	1,384	1,376	1,362	1,362	1,362
NORTH TEXAS MWD	SACHSE	DALLAS	TRINITY	3,344	3,740	4,430	4,384	4,384	4,384
NORTH TEXAS MWD	SAINT PAUL	COLLIN	TRINITY	192	468	930	1,479	1,756	1,848
NORTH TEXAS MWD	SAVOY	FANNIN	RED	0	13	35	57	59	61
NORTH TEXAS MWD	SCURRY	KAUFMAN	TRINITY	87	102	118	138	160	186
NORTH TEXAS MWD	SOUTH GRAYSON WSC	GRAYSON	TRINITY	0	100	100	100	100	100
NORTH TEXAS MWD	SOUTHWEST FANNIN COUNTY SU	FANNIN	RED	0	354	663	921	1,004	1,099
NORTH TEXAS MWD	STEAM ELECTRIC POWER	COLLIN	TRINITY	771	715	1,000	1,200	1,600	2,000
NORTH TEXAS MWD	STEAM ELECTRIC POWER	DALLAS	TRINITY	67	86	238	240	240	240
NORTH TEXAS MWD	STEAM ELECTRIC POWER	KAUFMAN	TRINITY	0	1,121	1,121	1,121	1,121	1,121
NORTH TEXAS MWD	SUNNYVALE	DALLAS	TRINITY	1,770	2,454	3,135	3,820	4,514	4,618
NORTH TEXAS MWD	TALTY	KAUFMAN	TRINITY	813	1,717	2,337	3,024	3,878	4,948
NORTH TEXAS MWD	TERRELL	KAUFMAN	TRINITY	3,807	10,385	14,780	19,138	21,731	24,643
NORTH TEXAS MWD	THE COLONY	DENTON	TRINITY	576	778	861	881	901	909
NORTH TEXAS MWD	TRENTON	FANNIN	TRINITY	0	131	368	694	1,077	1,464
NORTH TEXAS MWD	VAN ALSTYNE	GRAYSON	TRINITY	54	961	2,060	2,692	2,969	3,099
NORTH TEXAS MWD	WESTON	COLLIN	TRINITY	0	451	1,316	4,124	7,300	12,592
NORTH TEXAS MWD	WYLIE	COLLIN	TRINITY	6,553	8,378	10,138	12,052	12,052	12,052
NORTH TEXAS MWD	WYLIE	DALLAS	TRINITY	121	151	176	209	209	209
NORTH TEXAS MWD	WYLIE	ROCKWALL	TRINITY	136	208	272	340	340	340
NORTH TEXAS MWD	COUNTY-OTHER (LOSSES IN TREATMENT AND DELIVERY)	COLLIN	TRINITY	14,877	18,920	22,297	25,643	28,257	30,295
ROCKETT SUD	COUNTY-OTHER	ELLIS	TRINITY	70	70	70	70	70	70
ROCKETT SUD	ENNIS	ELLIS	TRINITY	17	17	17	17	17	17
ROCKETT SUD	FERRIS	ELLIS	TRINITY	174	220	268	328	403	473
ROCKETT SUD	LANCASTER	DALLAS	TRINITY	90	90	90	90	90	90
ROCKETT SUD	OAK LEAF	ELLIS	TRINITY	55	55	55	55	55	55
ROCKETT SUD	PALMER	ELLIS	TRINITY	0	2	13	24	40	62
ROCKETT SUD	PECAN HILL	ELLIS	TRINITY	160	183	205	228	254	285
ROCKETT SUD	RED OAK	ELLIS	TRINITY	118	201	246	263	281	299
ROCKETT SUD	ROCKETT SUD	DALLAS	TRINITY	356	461	584	661	693	698
ROCKETT SUD	ROCKETT SUD	ELLIS	TRINITY	4,357	5,524	6,852	7,975	8,547	8,622
ROCKETT SUD	ROCKETT SUD	ELLIS	TRINITY	0	0	0	0	0	0
ROCKETT SUD	SARDIS-LONE ELM WSC	DALLAS	TRINITY	0	5	5	5	5	5
ROCKETT SUD	SARDIS-LONE ELM WSC	ELLIS	TRINITY	0	2,150	2,929	2,885	2,862	2,862
ROCKETT SUD	WAXAHACHIE	ELLIS	TRINITY	613	613	613	613	613	613
ROCKWALL CITY OF	BLACKLAND WSC	ROCKWALL	SABINE	336	0	0	0	0	0
ROCKWALL CITY OF	BLACKLAND WSC	ROCKWALL	TRINITY	143	0	0	0	0	0
ROCKWALL CITY OF	BLACKLAND WSC	HUNT	SABINE	4	0	0	0	0	0
ROCKWALL CITY OF	COUNTY-OTHER	ROCKWALL	SABINE	101	101	121	150	150	150
ROCKWALL CITY OF	COUNTY-OTHER	ROCKWALL	TRINITY	188	188	168	137	137	137
ROCKWALL CITY OF	MANUFACTURING	ROCKWALL	SABINE	7	8	9	10	11	12
ROCKWALL CITY OF	MANUFACTURING	ROCKWALL	TRINITY	5	6	7	8	9	9
ROCKWALL CITY OF	MCLENDON-CHISHOLM	ROCKWALL	TRINITY	272	0	0	0	0	0
ROCKWALL CITY OF	MT ZION WSC	ROCKWALL	TRINITY	0	0	0	0	0	0
ROCKWALL CITY OF	R-C-H WSC	ROCKWALL	TRINITY	642	0	0	0	0	0
ROCKWALL CITY OF	ROCKWALL	ROCKWALL	TRINITY	9,855	17,597	21,596	25,162	25,826	25,826
SABINE RIVER AUTHORITY	**THROUGH DWU**								
SABINE RIVER AUTHORITY	Addison	DALLAS	Trinity	3,189	4,531	4,823	4,596	4,528	4,130
SABINE RIVER AUTHORITY	Balch Springs	DALLAS	Trinity	1,057	1,228	1,235	1,138	1,118	1,028
SABINE RIVER AUTHORITY	Carrollton	DENTON	Trinity	6,085	6,744	6,864	6,368	6,148	5,545
SABINE RIVER AUTHORITY	Carrollton	DALLAS	Trinity	4,359	4,712	4,636	4,218	4,031	3,638
SABINE RIVER AUTHORITY	Cedar Hill	DALLAS	Trinity	3,961	6,148	7,034	6,635	6,312	5,638
SABINE RIVER AUTHORITY	Cedar Hill	ELLIS	Trinity	0	1	1	1	1	1
SABINE RIVER AUTHORITY	Cockrell Hill	DALLAS	Trinity	263	310	301	268	255	228
SABINE RIVER AUTHORITY	Collin County Irrigation	COLLIN	Trinity	0	224	221	161	181	160

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
SABINE RIVER AUTHORITY	Combine	KAUFMAN	Trinity	74	103	118	125	142	151
SABINE RIVER AUTHORITY	Combine	DALLAS	Trinity	40	56	59	59	62	63
SABINE RIVER AUTHORITY	Combine WSC	KAUFMAN	Trinity	123	209	265	301	361	402
SABINE RIVER AUTHORITY	Combine WSC	DALLAS	Trinity	63	99	110	111	121	127
SABINE RIVER AUTHORITY	Coppell	DENTON	Trinity	48	71	86	91	97	94
SABINE RIVER AUTHORITY	Coppell	DALLAS	Trinity	4,609	4,958	4,815	4,370	4,141	3,700
SABINE RIVER AUTHORITY	Crandall	KAUFMAN	Trinity	0	109	181	172	236	233
SABINE RIVER AUTHORITY	Dallas	COLLIN	Trinity	6,489	7,714	8,079	7,586	7,419	6,906
SABINE RIVER AUTHORITY	Dallas	DALLAS	Trinity	101,128	120,305	125,703	119,672	128,872	138,660
SABINE RIVER AUTHORITY	Dallas	DALLAS	Trinity	40,581	41,949	43,318	44,685	46,054	47,423
SABINE RIVER AUTHORITY	Dallas	DENTON	Trinity	3,021	3,454	3,523	3,250	3,142	2,855
SABINE RIVER AUTHORITY	Dallas	KAUFMAN	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Dallas	ROCKWALL	Trinity	6	3	4	4	4	4
SABINE RIVER AUTHORITY	Dallas County WCID #6	DALLAS	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Dallas County Irrigation	DALLAS	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Dallas County Manufacturing	DALLAS	Trinity	10,047	12,729	13,522	13,071	13,207	11,822
SABINE RIVER AUTHORITY	Dallas County Mining	DALLAS	Trinity	120	141	138	125	119	106
SABINE RIVER AUTHORITY	Dallas County Other	DALLAS	Trinity	38	32	23	16	11	8
SABINE RIVER AUTHORITY	Dallas County Steam Electric	DALLAS	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Denton	DENTON	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Denton County FWSD NO. 1A	DENTON	Trinity	40	195	254	302	337	357
SABINE RIVER AUTHORITY	Denton County Irrigation	DENTON	Trinity	0	210	231	172	195	171
SABINE RIVER AUTHORITY	Denton County Manufacturing	DENTON	Trinity	172	229	253	255	268	259
SABINE RIVER AUTHORITY	DeSoto	DALLAS	Trinity	4,177	5,464	6,123	6,212	6,634	6,096
SABINE RIVER AUTHORITY	Duncanville	DALLAS	Trinity	3,068	3,198	3,113	2,835	2,665	2,391
SABINE RIVER AUTHORITY	Farmers Branch	DALLAS	Trinity	4,531	5,275	5,493	5,288	5,282	4,940
SABINE RIVER AUTHORITY	Flower Mound	DENTON	Trinity	3,494	4,536	5,256	4,795	4,561	4,078
SABINE RIVER AUTHORITY	Glenn Heights	DALLAS	Trinity	422	531	595	605	635	616
SABINE RIVER AUTHORITY	Glenn Heights	ELLIS	Trinity	146	217	264	288	325	344
SABINE RIVER AUTHORITY	Grand Prairie	DALLAS	Trinity	7,996	6,286	7,977	8,924	10,158	9,174
SABINE RIVER AUTHORITY	Grand Prairie	ELLIS	Trinity	26	80	216	341	485	439
SABINE RIVER AUTHORITY	Grand Prairie	TARRANT	Trinity	1,586	625	826	853	844	670
SABINE RIVER AUTHORITY	Grapevine	TARRANT	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Hebron	DENTON	Trinity	46	49	49	43	41	36
SABINE RIVER AUTHORITY	Hutchins	DALLAS	Trinity	331	446	546	641	798	1,171
SABINE RIVER AUTHORITY	Irving	DALLAS	Trinity	6,360	8,663	1,827	1,642	1,572	1,396
SABINE RIVER AUTHORITY	Lancaster	DALLAS	Trinity	2,265	3,905	4,139	3,717	3,549	3,161
SABINE RIVER AUTHORITY	Lewisville	DENTON	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Lewisville	DALLAS	Trinity	0	0	0	0	0	0
SABINE RIVER AUTHORITY	Oak Leaf	ELLIS	Trinity	114	149	170	176	191	195
SABINE RIVER AUTHORITY	Ovilla	DALLAS	Trinity	26	50	77	113	158	207
SABINE RIVER AUTHORITY	Ovilla	ELLIS	Trinity	352	611	809	908	864	772
SABINE RIVER AUTHORITY	Red Oak	ELLIS	Trinity	764	1,507	1,916	1,972	1,997	1,900
SABINE RIVER AUTHORITY	Rockwall County Irrigation	ROCKWALL	Trinity	0	21	20	15	17	15
SABINE RIVER AUTHORITY	Seagoville	DALLAS	Trinity	840	1,148	1,339	1,395	1,487	1,426
SABINE RIVER AUTHORITY	Seagoville	KAUFMAN	Trinity	2	2	3	4	7	7
SABINE RIVER AUTHORITY	The Colony	DENTON	Trinity	2,092	3,140	3,410	3,164	3,087	2,776
SABINE RIVER AUTHORITY	Wilmer	DALLAS	Trinity	49	88	121	216	494	757
SABINE RIVER AUTHORITY	**THROUGH NTMWD**								
SABINE RIVER AUTHORITY	Blackland WSC	ROCKWALL	Sabine	334	398	417	421	420	420
SABINE RIVER AUTHORITY	Blackland WSC	ROCKWALL	Trinity	142	171	178	179	180	180
SABINE RIVER AUTHORITY	Caddo Basin SUD	COLLIN	Sabine	820	835	820	820	821	821
SABINE RIVER AUTHORITY	Caddo Basin SUD	COLLIN	Trinity	379	386	380	380	379	379
SABINE RIVER AUTHORITY	Cash WSC	ROCKWALL	Sabine	644	651	650	650	650	650
SABINE RIVER AUTHORITY	Collin County-Other	COLLIN	Sabine	12	11	10	9	8	7
SABINE RIVER AUTHORITY	Collin County-Other	COLLIN	Trinity	391	291	229	185	151	128
SABINE RIVER AUTHORITY	Hunt County Other			108	104	100	100	100	100
SABINE RIVER AUTHORITY	Kaufman	KAUFMAN	Trinity	1,297	1,397	0	0	0	0
SABINE RIVER AUTHORITY	Kaufman County-Manufacturing	KAUFMAN	Trinity	456	397	369	354	342	340
SABINE RIVER AUTHORITY	Kaufman County-Manufacturing	KAUFMAN	Trinity	304	265	246	236	228	227
SABINE RIVER AUTHORITY	Kaufman County-Other	KAUFMAN	Sabine	438	359	0	0	0	0
SABINE RIVER AUTHORITY	Kaufman County-Other	KAUFMAN	Trinity	999	818	0	0	0	0

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
SABINE RIVER AUTHORITY	Nevada	COLLIN	Sabine	176	286	298	531	533	533
SABINE RIVER AUTHORITY	Nevada	COLLIN	Trinity	69	143	148	265	267	267
SABINE RIVER AUTHORITY	Plano	DENTON	Trinity	352	22	0	0	0	0
SABINE RIVER AUTHORITY	Plano	COLLIN	Trinity	16,147	728	0	0	0	0
SABINE RIVER AUTHORITY	Rockwall County-Manufacturing	ROCKWALL	Sabine	8	7	7	8	7	7
SABINE RIVER AUTHORITY	Rockwall County-Manufacturing	ROCKWALL	Trinity	12	11	11	11	11	11
SABINE RIVER AUTHORITY	Rockwall County-Other	ROCKWALL	Sabine	244	201	0	0	0	0
SABINE RIVER AUTHORITY	Rockwall County-Other	ROCKWALL	Trinity	137	112	0	0	0	0
SABINE RIVER AUTHORITY	Royse City	COLLIN	Sabine	282	582	844	968	1,052	1,122
SABINE RIVER AUTHORITY	Royse City	ROCKWALL	Sabine	2,188	2,418	2,156	2,032	1,948	1,878
SABINE RIVER AUTHORITY	Terrell	KAUFMAN	Trinity	3,012	2,375	2,710	2,352	2,330	2,286
SEAGOVILLE CITY OF	COMBINE	DALLAS	TRINITY	100	126	136	148	165	188
SEAGOVILLE CITY OF	COMBINE	KAUFMAN	TRINITY	182	230	269	315	372	447
SEAGOVILLE CITY OF	COMBINE WSC	DALLAS	TRINITY	156	221	250	279	319	373
SEAGOVILLE CITY OF	COMBINE WSC	KAUFMAN	TRINITY	306	467	605	756	949	1,189
SEAGOVILLE CITY OF	CRANDALL	KAUFMAN	TRINITY	0	334	588	874	1,239	1,692
SEAGOVILLE CITY OF	SEAGOVILLE	DALLAS	TRINITY	2,082	2,538	3,014	3,473	3,880	4,179
SEAGOVILLE CITY OF	SEAGOVILLE	KAUFMAN	TRINITY	3	4	5	7	10	12
SHERMAN	BELLS	GRAYSON	RED	0	80	150	210	260	300
SHERMAN	GUNTER	GRAYSON	TRINITY	0	180	350	530	700	820
SHERMAN	LUELLA WSC	GRAYSON	TRINITY	0	38	80	140	150	220
SHERMAN	MANUFACTURING	GRAYSON	RED	5,148	5,847	6,476	7,062	7,537	8,278
SHERMAN	MANUFACTURING	GRAYSON	TRINITY	1	2	2	2	2	2
SHERMAN	MARILEE SUD	COLLIN	TRINITY	106	125	326	516	740	943
SHERMAN	MARILEE SUD	GRAYSON	TRINITY	19	25	74	134	260	407
SHERMAN	COUNTY-OTHER	GRAYSON	RED	66	87	87	175	262	524
SHERMAN	COUNTY-OTHER	GRAYSON	TRINITY	9	13	13	25	38	76
SHERMAN	SHERMAN	GRAYSON	RED	10,081	11,240	12,696	14,348	16,586	19,804
SHERMAN	STEAM ELECTRIC POWER	GRAYSON	RED	3,360	3,360	3,360	3,360	3,360	3,360
SHERMAN	STEAM ELECTRIC POWER	GRAYSON	TRINITY	2,240	2,240	2,240	2,240	2,240	2,240
SHERMAN	TIOGA	GRAYSON	TRINITY	0	225	375	425	475	500
SHERMAN	TOM BEAN	GRAYSON	RED	0	1	6	11	18	19
SHERMAN	TOM BEAN	GRAYSON	TRINITY	0	9	34	64	102	111
SHERMAN	WHITEWRIGHT	FANNIN	RED	0	2	3	4	4	5
SHERMAN	WHITEWRIGHT	GRAYSON	RED	0	198	397	596	746	895
SULPHUR RIVER WATER DIST	**SEE REGION D REGIONAL WATER PLAN**								
TARRANT REGIONAL WD	ALEDO	PARKER	TRINITY	0	456	1,031	1,605	1,712	1,712
TARRANT REGIONAL WD	ALVARADO	JOHNSON	TRINITY	0	444	484	521	580	658
TARRANT REGIONAL WD	ALVORD	WISE	TRINITY	0	150	150	150	150	150
TARRANT REGIONAL WD	ANNETTA	PARKER	TRINITY	0	25	65	99	134	176
TARRANT REGIONAL WD	ANNETTA SOUTH	PARKER	TRINITY	0	5	16	24	35	47
TARRANT REGIONAL WD	ARLINGTON	TARRANT	TRINITY	67,540	74,913	79,067	82,535	82,156	82,306
TARRANT REGIONAL WD	AURORA	WISE	TRINITY	0	50	50	50	50	86
TARRANT REGIONAL WD	AZLE	PARKER	TRINITY	353	437	534	615	707	813
TARRANT REGIONAL WD	AZLE	TARRANT	TRINITY	1,600	2,196	3,068	4,082	5,142	6,047
TARRANT REGIONAL WD	BARDWELL	ELLIS	TRINITY	0	17	42	69	100	135
TARRANT REGIONAL WD	BEDFORD	TARRANT	TRINITY	9,029	9,338	9,556	9,699	9,908	10,137
TARRANT REGIONAL WD	BENBROOK	TARRANT	TRINITY	4,409	6,140	6,721	7,984	9,489	11,254
TARRANT REGIONAL WD	BETHESDA WSC	TARRANT	TRINITY	3,483	4,467	5,499	6,642	8,035	9,799
TARRANT REGIONAL WD	BOYD	WISE	TRINITY	65	128	189	247	309	309
TARRANT REGIONAL WD	BRIDGEPORT	WISE	TRINITY	1,361	1,899	2,702	3,187	3,713	4,444
TARRANT REGIONAL WD	BURLESON	TARRANT	TRINITY	5,248	7,676	9,462	9,550	9,749	10,062
TARRANT REGIONAL WD	CHICO	WISE	TRINITY	84	111	152	209	281	371
TARRANT REGIONAL WD	COLLEYVILLE	TARRANT	TRINITY	7,324	8,391	8,328	8,297	8,265	8,265
TARRANT REGIONAL WD	COMMUNITY WSC	TARRANT	TRINITY	426	421	415	406	409	420
TARRANT REGIONAL WD	COMMUNITY WSC	WISE	TRINITY	18	17	18	16	17	15
TARRANT REGIONAL WD	CORSICANA	NAVARRO	TRINITY	0	0	1,628	2,547	3,702	5,172
TARRANT REGIONAL WD	CROWLEY	TARRANT	TRINITY	1,238	1,548	2,049	2,881	3,547	3,893

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
TARRANT REGIONAL WD	DALWORTHINGTON GARDENS	TARRANT	TRINITY	505	550	581	596	608	618
TARRANT REGIONAL WD	DECATUR	WISE	TRINITY	1,639	2,011	2,748	3,537	4,580	5,385
TARRANT REGIONAL WD	COUNTY-OTHER	DENTON	TRINITY	445	579	663	743	825	908
TARRANT REGIONAL WD	EAST CEDAR CREEK FWSD	HENDERSON	TRINITY	1,698	1,866	2,215	2,382	2,580	2,777
TARRANT REGIONAL WD	EDGECLIFF	TARRANT	TRINITY	460	451	443	434	428	428
TARRANT REGIONAL WD	ENNIS	ELLIS	TRINITY	0	1,119	2,539	3,922	3,891	5,439
TARRANT REGIONAL WD	EULESS	TARRANT	TRINITY	8,314	9,376	9,774	9,924	9,993	10,064
TARRANT REGIONAL WD	EVERMAN	TARRANT	TRINITY	239	266	244	222	215	215
TARRANT REGIONAL WD	FAIRFIELD	FREESTONE	TRINITY	0	0	0	6	169	296
TARRANT REGIONAL WD	FERRIS	ELLIS	TRINITY	174	220	268	328	403	473
TARRANT REGIONAL WD	FOREST HILL	TARRANT	TRINITY	1,492	1,584	1,671	1,776	1,912	2,008
TARRANT REGIONAL WD	FORT WORTH	DENTON	TRINITY	1,373	8,046	12,049	17,497	24,765	31,979
TARRANT REGIONAL WD	FORT WORTH	PARKER	TRINITY	3,298	13,949	21,419	24,766	27,371	29,420
TARRANT REGIONAL WD	FORT WORTH	TARRANT	TRINITY	167,843	190,248	221,555	266,569	325,735	402,919
TARRANT REGIONAL WD	FORT WORTH	WISE	TRINITY	550	2,683	3,749	4,845	6,255	7,674
TARRANT REGIONAL WD	COUNTY-OTHER	FREESTONE	TRINITY	285	344	388	400	400	400
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	FREESTONE	TRINITY	6,726	7,726	7,726	7,726	7,726	7,726
TARRANT REGIONAL WD	GRAND PRAIRIE	TARRANT	TRINITY	1,122	12,331	12,331	12,331	12,331	12,331
TARRANT REGIONAL WD	GRAPEVINE	TARRANT	TRINITY	9,551	10,717	12,167	12,344	12,503	12,666
TARRANT REGIONAL WD	GUN BARREL CITY	HENDERSON	TRINITY	1,408	1,629	1,840	2,071	2,352	2,720
TARRANT REGIONAL WD	HALTOM CITY	TARRANT	TRINITY	6,521	7,835	8,142	8,231	8,272	8,324
TARRANT REGIONAL WD	HASLET	TARRANT	TRINITY	663	1,434	2,576	2,568	2,561	2,561
TARRANT REGIONAL WD	MINING	HENDERSON	TRINITY	79	91	98	106	113	120
TARRANT REGIONAL WD	COUNTY-OTHER	HENDERSON	TRINITY	79	77	76	74	74	74
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	HENDERSON	TRINITY	0	0	3,950	4,950	5,950	6,950
TARRANT REGIONAL WD	HUDSON OAKS	PARKER	TRINITY	113	194	295	393	490	586
TARRANT REGIONAL WD	HURST	TARRANT	TRINITY	6,708	6,991	6,854	6,716	6,670	6,670
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	JACK	TRINITY	2,162	2,500	2,700	2,900	3,100	3,300
TARRANT REGIONAL WD	JOHNSON COUNTY SUD	ELLIS	TRINITY	42	55	69	86	104	122
TARRANT REGIONAL WD	JOHNSON COUNTY SUD	TARRANT	TRINITY	1,640	3,308	6,657	6,640	6,622	6,604
TARRANT REGIONAL WD	IRRIGATION	KAUFMAN	TRINITY	100	100	100	100	100	100
TARRANT REGIONAL WD	COUNTY-OTHER	KAUFMAN	TRINITY	416	413	410	407	404	404
TARRANT REGIONAL WD	KELLER	TARRANT	TRINITY	9,124	10,138	11,495	11,380	11,380	11,380
TARRANT REGIONAL WD	KEMP	KAUFMAN	TRINITY	224	267	307	300	296	296
TARRANT REGIONAL WD	KENNEDALE	TARRANT	TRINITY	86	425	587	698	768	823
TARRANT REGIONAL WD	LAKE WORTH	TARRANT	TRINITY	585	665	757	845	945	999
TARRANT REGIONAL WD	MABANK	HENDERSON	TRINITY	95	109	123	140	159	184
TARRANT REGIONAL WD	MABANK	KAUFMAN	TRINITY	576	692	808	943	1,110	1,323
TARRANT REGIONAL WD	MALAKOFF	HENDERSON	TRINITY	174	180	186	191	202	217
TARRANT REGIONAL WD	MANSFIELD	ELLIS	TRINITY	402	647	1,122	1,835	2,550	3,028
TARRANT REGIONAL WD	MANSFIELD	TARRANT	TRINITY	13,230	18,373	23,359	27,550	30,493	33,673
TARRANT REGIONAL WD	MIDLOTHIAN	ELLIS	TRINITY	638	10,322	12,952	15,141	17,363	19,473
TARRANT REGIONAL WD	MOUNTAIN PEAK SUD	ELLIS	TRINITY	155	586	658	856	1,224	1,701
TARRANT REGIONAL WD	MANUFACTURING	NAVARRO	TRINITY	586	664	734	803	865	936
TARRANT REGIONAL WD	COUNTY-OTHER	NAVARRO	TRINITY	100	98	96	93	92	92
TARRANT REGIONAL WD	NEW FAIRVIEW	WISE	TRINITY	0	51	119	188	267	358
TARRANT REGIONAL WD	NEWARK	WISE	TRINITY	0	63	132	249	395	618
TARRANT REGIONAL WD	NORTH RICHLAND HILLS	TARRANT	TRINITY	12,263	13,599	14,520	15,067	15,460	15,789
TARRANT REGIONAL WD	NORTHLAKE	DENTON	TRINITY	268	404	467	898	1,329	1,599
TARRANT REGIONAL WD	PANTEGO	TARRANT	TRINITY	0	200	200	200	200	200
TARRANT REGIONAL WD	PARADISE	WISE	TRINITY	73	89	109	134	165	202
TARRANT REGIONAL WD	MANUFACTURING	PARKER	TRINITY	623	703	779	854	920	998
TARRANT REGIONAL WD	COUNTY-OTHER	PARKER	TRINITY	0	228	230	227	213	200
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	PARKER	TRINITY	24	22	28	56	75	102
TARRANT REGIONAL WD	PELICAN BAY	TARRANT	TRINITY	0	36	90	112	142	181
TARRANT REGIONAL WD	RENO	PARKER	TRINITY	152	154	155	154	160	170
TARRANT REGIONAL WD	RHOME	WISE	TRINITY	347	712	1,298	1,908	2,517	3,126
TARRANT REGIONAL WD	RICHLAND HILLS	TARRANT	TRINITY	865	919	979	1,049	1,096	1,118
TARRANT REGIONAL WD	RIVER OAKS	TARRANT	TRINITY	1,010	986	954	931	923	923
TARRANT REGIONAL WD	ROANOKE	DENTON	TRINITY	1,498	2,474	3,280	4,090	5,529	6,755
TARRANT REGIONAL WD	ROCKETT SUD	ELLIS	TRINITY	4,292	5,534	7,063	8,314	8,978	9,109
TARRANT REGIONAL WD	RUNAWAY BAY	WISE	TRINITY	296	356	430	489	547	608

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
TARRANT REGIONAL WD	SAGINAW	TARRANT	TRINITY	3,161	3,755	4,176	4,489	4,705	4,885
TARRANT REGIONAL WD	SANCTUARY	PARKER	TRINITY	92	216	314	370	426	478
TARRANT REGIONAL WD	SANSOM PARK VILLAGE	TARRANT	TRINITY	51	57	57	53	56	63
TARRANT REGIONAL WD	SARDIS-LONE ELM WSC	DALLAS	TRINITY	0	5	5	5	5	5
TARRANT REGIONAL WD	SARDIS-LONE ELM WSC	ELLIS	TRINITY	0	2,150	2,929	2,885	2,862	2,862
TARRANT REGIONAL WD	SEVEN POINTS	HENDERSON	TRINITY	188	222	254	288	330	385
TARRANT REGIONAL WD	SOUTHLAKE	TARRANT	TRINITY	9,059	9,375	9,420	9,690	10,045	10,550
TARRANT REGIONAL WD	SOUTHLAKE	DENTON	TRINITY	262	451	529	824	1,214	1,305
TARRANT REGIONAL WD	SPRINGTOWN	PARKER	TRINITY	268	423	571	725	877	1,036
TARRANT REGIONAL WD	IRRIGATION	TARRANT	TRINITY	5,518	4,208	4,208	4,208	4,208	4,208
TARRANT REGIONAL WD	MANUFACTURING	TARRANT	TRINITY	17,258	20,444	23,630	26,924	29,919	32,457
TARRANT REGIONAL WD	MINING	TARRANT	TRINITY	536	452	469	487	504	518
TARRANT REGIONAL WD	COUNTY-OTHER	TARRANT	TRINITY	1,885	1,805	1,751	1,671	1,644	1,644
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	TARRANT	TRINITY	2,640	2,448	2,640	2,640	2,640	2,640
TARRANT REGIONAL WD	TOOL	HENDERSON	TRINITY	405	452	500	548	610	695
TARRANT REGIONAL WD	TROPHY CLUB	DENTON	TRINITY	2,077	2,420	2,707	2,962	3,249	3,536
TARRANT REGIONAL WD	VENUS	JOHNSON	TRINITY	363	358	349	344	342	342
TARRANT REGIONAL WD	WALNUT CREEK SUD	PARKER	TRINITY	2,310	3,355	5,215	6,407	6,757	6,990
TARRANT REGIONAL WD	WALNUT CREEK SUD	WISE	TRINITY	296	439	680	815	874	932
TARRANT REGIONAL WD	WATAUGA	TARRANT	TRINITY	3,437	3,532	3,500	3,416	3,388	3,388
TARRANT REGIONAL WD	WAXAHACHIE	ELLIS	TRINITY	2,500	2,660	4,830	10,344	16,627	22,299
TARRANT REGIONAL WD	WEATHERFORD	PARKER	BRAZOS	116	164	220	275	335	403
TARRANT REGIONAL WD	WEATHERFORD	PARKER	TRINITY	2,426	3,530	4,507	5,442	6,433	7,588
TARRANT REGIONAL WD	WEST CEDAR CREEK MUD	HENDERSON	TRINITY	1,010	1,423	1,735	1,994	2,329	2,753
TARRANT REGIONAL WD	WEST CEDAR CREEK MUD	KAUFMAN	TRINITY	714	1,181	1,600	2,008	2,531	3,180
TARRANT REGIONAL WD	WEST WISE RURAL SUD	WISE	TRINITY	483	524	567	618	681	756
TARRANT REGIONAL WD	WESTOVER HILLS	TARRANT	TRINITY	276	274	272	270	268	268
TARRANT REGIONAL WD	WESTWORTH VILLAGE	TARRANT	TRINITY	350	412	426	442	470	519
TARRANT REGIONAL WD	WHITE SETTLEMENT	TARRANT	TRINITY	1,524	1,640	1,735	1,824	2,024	2,246
TARRANT REGIONAL WD	WILLOW PARK	PARKER	TRINITY	0	177	541	800	974	1,098
TARRANT REGIONAL WD	IRRIGATION	WISE	TRINITY	212	212	212	212	212	212
TARRANT REGIONAL WD	MANUFACTURING	WISE	TRINITY	2,299	2,646	2,965	3,263	3,525	3,844
TARRANT REGIONAL WD	MINING	WISE	TRINITY	7,943	8,677	9,486	10,318	11,177	11,987
TARRANT REGIONAL WD	COUNTY-OTHER	WISE	TRINITY	1,888	2,130	2,110	2,071	2,051	2,051
TARRANT REGIONAL WD	STEAM ELECTRIC POWER	WISE	TRINITY	1,751	1,245	1,216	1,878	2,042	2,748
TERRELL CITY OF	COLLEGE MOUND WSC	KAUFMAN	TRINITY	303	462	633	741	875	1,049
TERRELL CITY OF	COUNTY-OTHER	KAUFMAN	TRINITY	612	608	605	602	598	598
TERRELL CITY OF	COUNTY-OTHER	KAUFMAN	SABINE	221	218	215	212	210	210
TERRELL CITY OF	HIGH POINT WSC	KAUFMAN	TRINITY	165	234	278	328	389	470
TERRELL CITY OF	HIGH POINT WSC	ROCKWALL	TRINITY	16	25	30	36	44	52
TERRELL CITY OF	MANUFACTURING	KAUFMAN	TRINITY	304	325	348	371	397	424
TERRELL CITY OF	COUNTY-OTHER	HUNT	SABINE	108	128	157	203	313	485
TERRELL CITY OF	TERRELL	KAUFMAN	TRINITY	3,807	10,385	14,780	19,138	21,731	24,643
TRINITY RIVER AUTHORITY	ALVARADO	JOHNSON	TRINITY	0	444	484	521	580	658
TRINITY RIVER AUTHORITY	BARDWELL	ELLIS	TRINITY	0	17	42	69	100	135
TRINITY RIVER AUTHORITY	BEDFORD	TARRANT	TRINITY	9,029	9,338	9,556	9,699	9,908	10,137
TRINITY RIVER AUTHORITY	BUENA VISTA - BETHEL SUD	ELLIS	TRINITY	0	0	0	0	0	0
TRINITY RIVER AUTHORITY	COLLEYVILLE	TARRANT	TRINITY	7,324	8,391	8,328	8,297	8,265	8,265
TRINITY RIVER AUTHORITY	CORSICANA	NAVARRO	TRINITY	10,865	11,210	11,210	11,210	11,210	11,210
TRINITY RIVER AUTHORITY	COUNTY-OTHER	ELLIS	TRINITY	70	70	70	70	70	70
TRINITY RIVER AUTHORITY	ENNIS	ELLIS	TRINITY	4,066	5,002	6,195	8,017	12,134	15,805
TRINITY RIVER AUTHORITY	EULESS	TARRANT	TRINITY	8,314	9,376	9,774	9,924	9,993	10,064
TRINITY RIVER AUTHORITY	FERRIS	ELLIS	TRINITY	174	220	268	328	403	473
TRINITY RIVER AUTHORITY	GRAND PRAIRIE	TARRANT	TRINITY	0	7,287	7,287	7,287	7,287	7,287
TRINITY RIVER AUTHORITY	GRAPEVINE	TARRANT	TRINITY	9,551	10,717	12,167	12,344	12,503	12,666
TRINITY RIVER AUTHORITY	IRRIGATION	DALLAS	TRINITY	8,250	8,250	8,250	8,250	8,250	8,250
TRINITY RIVER AUTHORITY	ITALY	ELLIS	TRINITY	282	330	362	397	439	489
TRINITY RIVER AUTHORITY	LANCASTER	DALLAS	TRINITY	90	90	90	90	90	90
TRINITY RIVER AUTHORITY	MANUFACTURING	ELLIS	TRINITY	1,386	1,468	1,536	1,595	1,636	1,565
TRINITY RIVER AUTHORITY	MAYPEARL	ELLIS	TRINITY	195	238	282	276	272	272

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
TRINITY RIVER AUTHORITY	MIDLOTHIAN	ELLIS	TRINITY	3,438	6,765	9,174	11,151	13,178	15,206
TRINITY RIVER AUTHORITY	MOUNTAIN PEAK SUD	ELLIS	TRINITY	155	586	658	856	1,224	1,701
TRINITY RIVER AUTHORITY	NORTH RICHLAND HILLS	TARRANT	TRINITY	8,747	9,682	10,327	10,710	10,985	11,215
TRINITY RIVER AUTHORITY	OAK LEAF	ELLIS	TRINITY	55	55	55	55	55	55
TRINITY RIVER AUTHORITY	PALMER	ELLIS	TRINITY	0	2	13	24	40	42
TRINITY RIVER AUTHORITY	PECAN HILL	ELLIS	TRINITY	160	183	205	228	254	285
TRINITY RIVER AUTHORITY	RED OAK	ELLIS	TRINITY	118	201	246	263	281	299
TRINITY RIVER AUTHORITY	ROCKETT SUD	ELLIS	TRINITY	4,713	5,985	7,436	8,636	9,240	9,320
TRINITY RIVER AUTHORITY	SARDIS-LONE ELM WSC	DALLAS	TRINITY	0	5	5	5	5	5
TRINITY RIVER AUTHORITY	SARDIS-LONE ELM WSC	ELLIS	TRINITY	0	2,150	2,929	2,885	2,862	2,862
TRINITY RIVER AUTHORITY	STEAM ELECTRIC POWER	FREESTONE	TRINITY	0	0	0	0	1,508	6,672
TRINITY RIVER AUTHORITY	STEAM ELECTRIC POWER	DALLAS	TRINITY	450	0	6,760	6,760	6,760	6,760
TRINITY RIVER AUTHORITY	STEAM ELECTRIC POWER	ELLIS	TRINITY	224	224	224	224	224	2,023
TRINITY RIVER AUTHORITY	STEAM ELECTRIC POWER	FREESTONE	TRINITY	23,369	26,817	27,726	27,726	27,726	27,726
TRINITY RIVER AUTHORITY	STEAM ELECTRIC POWER	KAUFMAN	TRINITY	0	1,000	1,000	1,000	1,000	1,000
TRINITY RIVER AUTHORITY	COUNTY-OTHER	DALLAS	TRINITY	0	0	0	0	0	0
TRINITY RIVER AUTHORITY	VENUS	JOHNSON	TRINITY	363	358	349	344	342	342
TRINITY RIVER AUTHORITY	WAXAHACHIE	ELLIS	TRINITY	6,549	9,059	11,258	16,848	23,198	28,925
UPPER NECHES MUNICIPAL WATER DISTRICT		**SEE REGION I WATER PLAN**							
UPPER TRINITY REGIONAL WD	ARGYLE WSC	DENTON	TRINITY	1,823	3,494	4,855	5,396	6,016	6,639
UPPER TRINITY REGIONAL WD	AUBREY	DENTON	TRINITY	105	564	1,111	1,586	2,241	3,110
UPPER TRINITY REGIONAL WD	BARTONVILLE WSC	DENTON	TRINITY	1,213	1,979	2,224	2,370	2,520	2,671
UPPER TRINITY REGIONAL WD	BOLIVAR WSC	COOKE	TRINITY	130	282	369	366	350	350
UPPER TRINITY REGIONAL WD	BOLIVAR WSC	DENTON	TRINITY	562	1,447	3,830	7,875	12,261	16,117
UPPER TRINITY REGIONAL WD	BOLIVAR WSC	WISE	TRINITY	122	282	415	564	752	1,051
UPPER TRINITY REGIONAL WD	CELINA	COLLIN	TRINITY	741	3,780	8,591	15,750	26,682	31,566
UPPER TRINITY REGIONAL WD	CELINA	DENTON	TRINITY	0	457	1,038	1,902	3,223	3,813
UPPER TRINITY REGIONAL WD	CORINTH	DENTON	TRINITY	4,665	5,269	5,679	6,085	6,519	6,845
UPPER TRINITY REGIONAL WD	COUNTY-OTHER	DENTON	TRINITY	6,110	8,642	10,484	12,240	14,022	15,851
UPPER TRINITY REGIONAL WD	DENTON COUNTY FWSD #1A	DENTON	TRINITY	892	1,059	1,428	1,812	2,202	2,609
UPPER TRINITY REGIONAL WD	FLOWER MOUND	DENTON	TRINITY	8,662	12,754	19,765	19,765	19,765	19,765
UPPER TRINITY REGIONAL WD	HIGHLAND VILLAGE	DENTON	TRINITY	2,631	2,998	3,310	3,413	3,503	3,613
UPPER TRINITY REGIONAL WD	IRRIGATION	DENTON	TRINITY	800	900	1,000	1,100	1,200	1,300
UPPER TRINITY REGIONAL WD	JUSTIN	DENTON	TRINITY	437	862	1,479	2,516	3,113	3,461
UPPER TRINITY REGIONAL WD	KRUM	DENTON	TRINITY	213	294	389	496	646	810
UPPER TRINITY REGIONAL WD	LADONIA	FANNIN	SULPHUR	0	257	427	523	655	863
UPPER TRINITY REGIONAL WD	COUNTY-OTHER	DENTON	TRINITY	2,151	2,781	3,191	3,454	3,470	3,501
UPPER TRINITY REGIONAL WD	LINCOLN PARK	DENTON	TRINITY	69	99	125	152	179	214
UPPER TRINITY REGIONAL WD	COUNTY-OTHER (losses in treatment & Delivery)	DENTON	TRINITY	1,624	2,724	4,032	5,200	6,486	7,393
UPPER TRINITY REGIONAL WD	MANUFACTURING	DENTON	TRINITY	179	301	288	278	294	329
UPPER TRINITY REGIONAL WD	MINING	DENTON	TRINITY	550	263	263	263	263	263
UPPER TRINITY REGIONAL WD	MUSTANG SUD	DENTON	TRINITY	1,123	3,151	4,447	6,572	8,753	10,963
UPPER TRINITY REGIONAL WD	NORTHLAKE	DENTON	TRINITY	0	404	467	898	1,329	1,598
UPPER TRINITY REGIONAL WD	PILOT POINT	DENTON	TRINITY	0	284	1,139	1,397	1,607	1,831
UPPER TRINITY REGIONAL WD	PONDER	DENTON	TRINITY	0	617	1,549	2,666	3,150	3,270
UPPER TRINITY REGIONAL WD	PROSPER	COLLIN	TRINITY	100	1,296	2,267	3,288	4,169	4,499
UPPER TRINITY REGIONAL WD	PROSPER	DENTON	TRINITY	0	864	1,512	2,381	2,040	2,250
UPPER TRINITY REGIONAL WD	COUNTY-OTHER	DENTON	TRINITY	0	0	0	0	0	0
WALNUT CREEK SUD	AURORA	WISE	TRINITY	0	50	50	50	50	86
WALNUT CREEK SUD	BOYD	WISE	TRINITY	65	128	189	247	309	309
WALNUT CREEK SUD	COUNTY-OTHER	PARKER	TRINITY	0	0	0	0	0	0
WALNUT CREEK SUD	COUNTY-OTHER	WISE	TRINITY	0	0	0	0	0	0
WALNUT CREEK SUD	NEW FAIRVIEW	WISE	TRINITY	0	51	119	188	267	358
WALNUT CREEK SUD	NEWARK	WISE	TRINITY	0	63	132	249	395	618
WALNUT CREEK SUD	PARADISE	WISE	TRINITY	73	89	109	134	165	202
WALNUT CREEK SUD	RENO	PARKER	TRINITY	76	77	78	77	80	85
WALNUT CREEK SUD	RHOME	WISE	TRINITY	347	712	1,298	1,908	2,517	3,126
WALNUT CREEK SUD	SANCTUARY	PARKER	TRINITY	92	216	314	370	426	478

Region C Wholesale Water Provider Demand by County and Basin
(Ac-ft per Year)

Wholesale Water Provider	WUG Customer	WUG County	WUG Basin	2010	2020	2030	2040	2050	2060
WALNUT CREEK SUD	WALNUT CREEK SUD	PARKER	TRINITY	2,310	3,355	5,215	6,407	6,757	6,990
WALNUT CREEK SUD	WALNUT CREEK SUD	WISE	TRINITY	296	439	680	815	874	932
WALNUT CREEK SUD	WALNUT CREEK SUD	WISE	TRINITY	0	0	0	0	0	0
WALNUT CREEK SUD	WEST WISE RURAL SUD	WISE	TRINITY	404	404	404	404	404	404
WAXAHACHIE CITY OF	BUENA VISTA - BETHEL SUD	ELLIS	TRINITY	1,043	1,466	1,967	2,536	3,158	3,836
WAXAHACHIE CITY OF	COUNTY-OTHER	ELLIS	TRINITY	242	240	237	236	235	235
WAXAHACHIE CITY OF	FILES VALLEY WSC	ELLIS	TRINITY	0	100	100	100	100	100
WAXAHACHIE CITY OF	ITALY	ELLIS	TRINITY	0	43	75	110	152	202
WAXAHACHIE CITY OF	MANUFACTURING	ELLIS	TRINITY	970	1,028	1,075	1,116	1,145	1,095
WAXAHACHIE CITY OF	MAYPEARL	ELLIS	TRINITY	0	23	67	61	57	57
WAXAHACHIE CITY OF	STEAM ELECTRIC POWER	ELLIS	TRINITY	0	0	0	2,116	4,128	4,454
WAXAHACHIE CITY OF	WAXAHACHIE	ELLIS	TRINITY	6,855	8,781	10,330	13,090	16,672	21,341
WAXAHACHIE CITY OF	WAXAHACHIE	ELLIS	TRINITY	0	0	0	0	0	0
WEATHERFORD CITY OF	ANNETTA	PARKER	TRINITY	0	25	65	99	134	176
WEATHERFORD CITY OF	ANNETTA SOUTH	PARKER	TRINITY	0	5	16	24	35	47
WEATHERFORD CITY OF	STEAM ELECTRIC POWER	PARKER	TRINITY	24	22	28	56	75	102
WEATHERFORD CITY OF	COUNTY-OTHER	PARKER	TRINITY	0	228	230	227	213	200
WEATHERFORD CITY OF	HUDSON OAKS	PARKER	TRINITY	113	194	295	393	490	586
WEATHERFORD CITY OF	MANUFACTURING	PARKER	TRINITY	574	654	730	805	870	948
WEATHERFORD CITY OF	MANUFACTURING	PARKER	BRAZOS	49	49	49	49	50	50
WEATHERFORD CITY OF	WEATHERFORD	PARKER	BRAZOS	247	298	357	413	473	540
WEATHERFORD CITY OF	WEATHERFORD	PARKER	TRINITY	5,262	6,319	7,250	8,141	9,088	10,201
WEATHERFORD CITY OF	WEATHERFORD	PARKER	TRINITY	0	0	0	0	0	0
WEATHERFORD CITY OF	WILLOW PARK	PARKER	TRINITY	0	89	271	400	487	549
WEST CEDAR CREEK MUD	SEVEN POINTS	HENDERSON	TRINITY	188	222	254	288	330	385
WEST CEDAR CREEK MUD	TOOL	HENDERSON	TRINITY	405	452	500	548	610	695
WEST CEDAR CREEK MUD	COUNTY-OTHER	HENDERSON	TRINITY	1,010	1,423	1,735	1,994	2,329	2,753
WEST CEDAR CREEK MUD	COUNTY-OTHER	KAUFMAN	TRINITY	714	1,181	1,600	2,008	2,531	3,180
WEST CEDAR CREEK MUD	COUNTY-OTHER	HENDERSON	TRINITY	0	0	0	0	0	0
WISE COUNTY WSD	DECATUR	WISE	TRINITY	1,639	2,011	2,748	3,537	4,580	5,385
WISE COUNTY WSD	MANUFACTURING	WISE	TRINITY	116	133	149	164	177	193

APPENDIX I

WATER SUPPLY AVAILABLE TO REGION C

APPENDIX I
WATER SUPPLY AVAILABLE TO REGION C

Table I.1 shows the overall water supply available to Region C. Table I.2 shows the overall water supply available to Region C that was reported in the *2006 Region C Water Plan* (1). The rest of the appendix explains the sources of the data in Table I.1. The table represents the water supply that might be available to the region, whether it is currently connected to a water user group or not. The table is based on:

- Existing water rights (2)
- Available supply for reservoirs
- Reliable supplies from run-of-the-river diversions
- Available supply from groundwater
- Estimated local supplies for mining and livestock
- Existing and permitted reuse supplies

Limits to water supply due to current water transmission facilities and wells are not considered in the development of Table I.1. They are considered in Appendix J, Current Supplies by Water User Group.

Table I.1
Overall Water Supply Availability in Region C
(acre-feet per year)

SUMMARY	2010	2020	2030	2040	2050	2060
Reservoirs in Region C	1,342,326	1,335,224	1,327,817	1,320,283	1,312,749	1,305,213
Local Irrigation	20,205	20,205	20,205	20,205	20,205	20,205
Other Local Supply	23,701	23,701	23,701	23,701	23,701	23,701
Surface Water Imports	598,775	576,120	552,672	549,222	545,782	542,352
Groundwater	146,152	146,152	146,152	146,152	146,152	146,152
Reuse	203,974	246,510	289,995	312,972	321,405	336,082
REGION C TOTAL	**2,335,133**	**2,347,912**	**2,360,542**	**2,374,535**	**2,369,994**	**2,373,705**

Table I.2
2006 Plan [1] – Overall Water Supply Availability in Region C
(acre-feet per year)

SUMMARY	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Reservoirs in Region C	1,165,080	1,155,771	1,146,113	1,135,964	1,125,705	1,111,096
Local Irrigation	20,205	20,205	20,205	20,205	20,205	20,205
Other Local Supply	23,701	23,701	23,701	23,701	23,701	23,701
Surface Water Imports	564,302	560,292	555,492	550,689	545,898	541,117
Groundwater	106,460	106,460	106,460	106,460	106,460	106,460
Reuse	99,979	105,810	104,800	104,175	103,697	103,429
REGION C TOTAL	**1,979,727**	**1,972,240**	**1,956,770**	**1,941,194**	**1,925,666**	**1,906,007**
Change from 2006 Plan to 2011 Plan	**335,406**	**375,672**	**403,772**	**433,341**	**444,328**	**467,698**

Water Supply Systems and Reservoirs

Table I.3 presents the water availability for water supply systems and reservoirs in Region C. The table also shows the water availability that was presented in the *2006 Region C Water Plan* [1]. In accordance with the Texas Water Development Board's (TWDB) established procedures [3], these surface water supplies are determined using the TCEQ-approved Water Availability Models (WAM). WAMs have been completed for each of the major river basins in Texas. The WAM models were developed for the purpose of reviewing and granting new surface water rights permits. The assumptions in the WAM models are based on the legal interpretation of water rights, and in some cases do not accurately reflect current operations. Availabilities for each water right are analyzed in priority date order, with water rights with the earliest permit date diverting first. WAM Run 3, which is the version used for planning, assumes full permitted diversions by all water rights and no return flows unless return flows are specifically required in the water right. Run 3 also does not include agreements or operations that are not reflected in the water right permits and does not account for reductions in reservoir capacities due to sediment accumulation. For planning purposes, adjustments were made to the WAMs to better reflect current and future surface water conditions in the region. Generally, changes to the WAMs included:

- Assessment of reservoir sedimentation rates and calculation of area-capacity conditions for 2000 and 2060 conditions.
- Inclusion of subordination agreements not already included in the TCEQ WAM
- Inclusion of system operation where appropriate
- Other corrections

The reliable supply from run-of-the-river diversions was assumed equal to the permitted diversion for water rights located on the main stem of the river and 75 percent of the permitted diversion for water rights located on tributaries.

Specific adjustments to the WAMs to more accurately reflect the water rights and agreements for water supply sources in Region C are:

Trinity River Basin WAM

- Modeling of Lake Jacksboro and Lost Creek Reservoir as a system.
- Modeling of Tarrant Regional Water District's West Fork reservoirs (Bridgeport, Eagle Mountain, and Worth) as a system.
- An upstream diversion of Lake Livingston water from the Trinity River to Fairfield Lake.
- Inclusion of a minimum elevation for Lake Fairfield (305.0 ft. msl).
- Modeling of Dallas' water rights in the Elm Fork of the Trinity River as a system with Lake Lewisville and Ray Roberts.

Red River Basin WAM

- Modeling of Lake Randell and Valley Lake as stand-alone reservoirs without Lake Texoma backups for the firm yield calculation. These two reservoirs are modeled one day senior to Lake Texoma's most senior authorization. Backup supply for these reservoirs from Lake Texoma is included in the supplies from Lake Texoma. For firm yield calculations for other reservoirs, the backups for Lake Randell and Valley Lake were retained.
- Modeling of Lake Texoma as a single reservoir with inactive storage rather than modeling as multiple storage pools for the Lake Texoma firm yield calculation. For the firm yield calculation of other reservoirs, multiple storage pools were retained in Lake Texoma.
- Removal of a "dummy" Lake Texoma water right for the State of Oklahoma for 100,000 acre-feet of storage and 113,000 acre-feet per year of diversion. This water right mirrors the recent NTMWD amendment. This change was necessary to limit the water supply storage to 450,000 acre-feet, the amount currently authorized by the U.S. Congress. (TCEQ currently assumes a diversion of 168,000 acre-feet per year from the existing 150,000 acre-feet of storage reserved for

Oklahoma. Currently there are less than 5,000 acre-feet per year of permitted Oklahoma diversions.)

- Addition of 50,000 acre-feet of storage and 56,500 acre-feet per year of diversion from Lake Texoma corresponding to the recent water right obtained by the Greater Texoma Utility Authority.
- Removal of backups of individual pools in Lake Texoma from the hydropower pool. These are not invoked in the WAM because all Lake Texoma rights are reliable using only their pools.

Imports to Region C

Supplies from Lake Chapman were determined using the Sulphur River Basin WAM.

Information obtained from Region D indicated that no adjustments were made to the Sabine River WAM that would impact the currently available water supplies for Region C. Therefore, the yields for Lake Fork and Lake Tawakoni were assumed to be the same as they were in the *2006 Region C Water Plan* (1).

Region C has very few water supplies in the Brazos River Basin. Thus, the water availability information as determined by the Brazos G Regional Water Planning Group was adopted.

For Lake Palestine and Lake Athens, both in the Neches River Basin, the water availability information as determined by the Region I Water Planning Group was adopted. The available supply for Dallas Water Utilities from Lake Palestine was decreased based on a decreasing firm yield in the reservoir.

For Lake Livingston, the water availability information as determined by the Region H Water Planning Group was adopted.

Table I.3
Currently Available Surface Water Supplies from Reservoirs in Region C
(Not Considering Transmission Constraints)
(Acre-Feet per Year)

		Revised Surface Water Availability							Surface Water Availability in 2006 Plan						
	Basin	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
WATER SUPPLY SYSTEMS															
Lost Creek/ Jacksboro System	Trinity	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,440	1,440	1,440	1,440	1,440	1,440	1,440
West Fork (includes Bridgeport Local)	Trinity	110,500	109,833	109,167	108,500	107,833	107,167	106,500	110,000	108,500	107,000	105,500	104,000	102,500	101,000
Elm Fork/ Lewisville/ Ray Roberts (Dallas)	Trinity	185,869	184,801	183,733	182,665	181,597	180,529	179,459	193,753	191,729	189,705	187,681	185,657	183,633	181,609
Grapevine - Dallas	Trinity	7,800	7,583	7,367	7,150	6,933	6,717	6,500	7,700	7,250	6,800	6,350	5,900	5,450	5,000
Subtotal Systems		**305,766**	**303,815**	**301,863**	**299,912**	**297,961**	**296,009**	**294,056**	**312,893**	**308,919**	**304,945**	**300,971**	**296,997**	**293,023**	**289,049**
RESERVOIRS IN REGION C															
Cedar Creek	Trinity	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000
Richland-Chambers (TRWD)	Trinity	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	205,650
Richland-Chambers (Corsicana) and Lake Halbert	Trinity	13,880	13,872	13,863	13,855	13,847	13,838	13,830	12,750	12,625	12,500	12,375	12,250	12,125	12,000
Moss	Red	7,410	7,410	7,410	7,410	7,410	7,410	7,410	4,500	4,500	4,500	4,500	4,500	4,500	4,500
Lake Texoma (Texas' Share – NTMWD)	Red	190,300	190,300	190,300	190,300	190,300	190,300	190,300	77,300	77,300	77,300	77,300	77,300	77,300	77,300
Lake Texoma (Texas' Share – GTUA)	Red	25,000	81,500	81,500	81,500	81,500	81,500	81,500	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Lake Texoma (Texas' Share – Denison)	Red	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400
LakeTexoma (Texas' Share – Luminant)	Red	16,400	16,400	16,400	16,400	16,400	16,400	16,400	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Lake Texoma (Texas' Share – RRA)	Red	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Randell	Red	1,400	1,400	1,400	1,400	1,400	1,400	1,400	5,280	5,280	5,280	5,280	5,280	5,280	5,280
Valley	Red	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bonham	Red	5,340	5,340	5,340	5,340	5,340	5,340	5,340	5,340	5,340	5,340	5,340	4,850	4,250	3,650
Ray Roberts (Denton)	Trinity	19,240	18,980	18,720	18,460	18,200	17,940	17,680	21,008	20,445	19,882	19,319	18,756	18,193	17,630
Lewisville (Denton)	Trinity	8,020	7,918	7,817	7,715	7,613	7,512	7,410	7,896	7,702	7,507	7,313	7,119	6,924	6,730

Table I.3, Continued

		Revised Surface Water Availability							Surface Water Availability in 2006 Plan						
	Basin	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Benbrook	Trinity	6,833	6,833	6,833	6,833	6,833	6,833	6,833	6,834	6,834	6,834	6,834	6,834	6,834	6,834
Weatherford	Trinity	3,010	2,967	2,923	2,880	2,837	2,793	2,750	2,900	2,750	2,600	2,450	2,300	2,150	2,000
Grapevine (PCMUD)	Trinity	17,200	17,050	16,900	16,750	16,600	16,450	16,300	16,800	16,167	15,533	14,900	14,267	13,633	13,000
Grapevine (Grapevine)	Trinity	2,050	2,017	1,983	1,950	1,917	1,883	1,850	1,900	1,833	1,767	1,700	1,633	1,567	1,500
Arlington	Trinity	10,000	9,850	9,700	9,550	9,400	9,250	9,100	8,400	8,333	8,267	8,200	8,133	8,067	8,000
Joe Pool	Trinity	15,500	15,192	14,883	14,575	14,267	13,958	13,650	16,400	15,333	14,267	13,200	12,133	11,067	10,000
Mountain Creek	Trinity	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400
North	*Trinity*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lake Ray Hubbard (Dallas)	Trinity	58,740	57,427	56,113	54,800	53,487	52,173	50,860	60,700	60,367	60,033	59,700	59,367	59,033	58,700
White Rock	Trinity	3,800	3,500	3,200	2,900	2,600	2,300	2,000	5,900	5,083	4,267	3,450	2,633	1,817	1,000
Terrell	Trinity	2,300	2,283	2,267	2,250	2,233	2,217	2,200	2,300	2,283	2,267	2,250	2,233	2,217	2,200
Clark	Trinity	210	210	210	210	210	210	210	139	139	139	139	139	139	139
Bardwell	Trinity	9,600	9,600	9,600	9,295	8,863	8,432	8,000	8,980	8,567	8,153	7,740	7,327	6,913	6,500
Waxahachie	Trinity	3,010	2,905	2,800	2,695	2,590	2,485	2,380	2,760	2,667	2,573	2,480	2,387	2,293	2,200
Forest Grove	Trinity	8,840	8,767	8,693	8,620	8,547	8,473	8,400	8,600	8,583	8,567	8,550	8,533	8,517	8,500
Trinidad City Lake	Trinity	450	450	450	450	450	450	450	500	500	500	500	500	500	500
Trinidad	Trinity	3,050	3,050	3,050	3,050	3,050	3,050	3,050	3,100	3,067	3,033	3,000	2,967	2,933	2,900
Navarro Mills	Trinity	19,400	19,342	18,333	17,325	16,317	15,308	14,300	19,400	19,400	18,800	17,850	16,900	15,950	15,000
Fairfield	Trinity	870	870	870	870	870	870	870	1,700	1,567	1,433	1,300	1,167	1,033	900
Bryson	Brazos	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mineral Wells	Brazos	2,520	2,508	2,495	2,483	2,470	2,458	2,445	2,520	2,508	2,495	2,483	2,470	2,458	2,445
Teague City Lake	Brazos	189	189	189	189	189	189	189	189	189	189	189	189	189	189
Lake Lavon	Trinity	113,300	112,033	110,767	109,500	108,233	106,967	105,700	104,000	104,000	104,000	104,000	104,000	104,000	104,000
Muenster	Trinity	300	300	300	300	300	300	300	0	0	0	0	0	0	0
Subtotal Reservoirs		**986,212**	**1,038,511**	**1,033,360**	**1,027,905**	**1,022,322**	**1,016,740**	**1,011,157**	**874,396**	**869,995**	**864,993**	**859,642**	**853,800**	**847,849**	**837,547**
TOTAL		**1,291,978**	**1,342,326**	**1,335,224**	**1,327,817**	**1,320,283**	**1,312,749**	**1,305,213**	**1,187,289**	**1,178,914**	**1,169,938**	**1,160,613**	**1,150,797**	**1,140,872**	**1,126,596**

WATER SUPPLY SYSTEMS

The water supply systems listed are operated as physical systems – the water they provide cannot easily be separated by individual source. The supply available is based on the calculation of the Water Availability Models (WAMs), as described above. More detailed discussions on water supply available for each system are given below.

Lost Creek/Jacksboro System (Jacksboro). Lake Jacksboro is a 2,129 acre-foot reservoir located just outside of the City of Jacksboro in the Trinity River Basin in Jack County, and Lost Creek Reservoir is an 11,961 acre-foot reservoir located 1.5 miles downstream of the Lake Jacksboro dam. The City of Jacksboro holds a water right for the combined use of both reservoirs for municipal water supply and the right to divert 1,440 acre-feet per year. The water right authorizes the reservoirs to be operated as a system, so the WAM was modified to include system operation and the subordination agreement with TRWD. According to the WAM, the firm yield from this system as of 2060 is 2,430 acre-feet per year. The available supply from this system is limited to 1,597 acre-feet per year, which is the permitted amount of 1,397 plus 200 acre-feet per year of return flows that Jacksboro is authorized to use.

West Fork including Bridgeport Local System (Tarrant Regional Water District). Tarrant Regional Water District's West Fork Reservoir system is comprised of Lake Bridgeport, Lake Worth, and Eagle Mountain Lake. The WAM was modified to include the system operation of these three reservoirs. The resulting combined system firm yield was 110,500 acre-feet per year in 2010 and 106,500 acre-feet per year in 2060.

Under current conditions, this system provides somewhat less supply than shown. With existing facilities, it is not possible to divert water from Lake Worth when the lake is drawn down more than four feet, which makes some of the water stored in Lake Worth unavailable. In addition, the Tarrant Regional Water District operates its water supplies on a safe yield basis, which provides a smaller supply than the firm yield numbers shown. (In safe yield operation, the user takes less than the firm yield in order to leave a reserve supply in the reservoir in case a drought worse than any historical drought occurs.)

Elm Fork/Lake Lewisville/Ray Roberts System (Dallas). This system, owned by Dallas, is comprised of Lake Lewisville, Lake Ray Roberts, and run-of-the-river rights from Elm Fork. The WAM was modified to include the system operation of these supplies. The resulting combined system yield was 184,801 acre-feet per year in 2010 and 179,459 acre-feet per year in 2060. The firm yield is higher than what was shown in the 2006 *Region C Water Plan* (1) due to changes made in the WAM.

Lake Grapevine (Dallas). Dallas includes its portion of supply from Lake Grapevine in its system operation with Elm Fork/Lewisville/Ray Roberts. The WAM was modified to include this system operation. The resulting yield for Dallas' portion of Lake Grapevine was 7,800 acre-feet per year in 2010 and 6,500 acre-feet per year in 2060. The WAM modeling for Lake Grapevine does not include the Lake Grapevine Accounting Plan.

RESERVOIRS IN REGION C

All major reservoirs in Region C as well as some smaller reservoirs used for municipal supply are listed in Table I.3. The supply available is based on the calculation of the Water Availability Models (WAMs), which limits the supply to the lesser of the firm yield or the permit amount.

Cedar Creek. Cedar Creek Reservoir is located on Cedar Creek in the Trinity River Basin in Henderson and Kaufman Counties. The reservoir has a permitted conservation storage of 678,900 acre-feet. Tarrant Regional Water District holds a water right for diversion of 175,000 acre-feet per year. According to the WAM, the firm yield is 211,900 acre-feet per year in 2000, decreasing to 205,200 acre-feet per year by 2060. The available supply from Cedar Creek is limited to the permit amount of 175,000 acre-feet per year.

Richland-Chambers (and Lake Halbert). Richland-Chambers Reservoir is located on Richland Creek in the Trinity River Basin in Freestone and Navarro Counties. The reservoir has a permitted conservation storage of 1,135,000 acre-feet. Tarrant Regional Water District and City of Corsicana hold water rights in the reservoir (210,000 acre-feet per year for TRWD and 13,650 acre-feet per year for Corsicana). According to the WAM, the firm yield of the TRWD water right is 228,300 acre-feet per year in 2000, decreasing to 210,800 acre-feet per year by 2060. The available supply to TRWD from Richland-Chambers is limited to the permitted amount of 210,000 acre-feet per year.

Corsicana's water right in Lake Halbert is backed up by the City's water right in Richland-Chambers. The pipeline connection from Richland-Chambers to Lake Halbert was completed since the *2006 Region C Water Plan* (1). Lake Halbert is located on Elm Creek in the Trinity River Basin in Navarro County. The reservoir has permitted conservation storage of 7,357 acre-feet. The City of Corsicana holds a water right in Lake Halbert for 4,003 acre-feet per year. According to the WAM, the available supply from Richland Chambers Reservoir and Lake Halbert to Corsicana as of 2060 is 13,830 acre-feet per year.

Moss. Moss Lake is located on Fish Creek in the Red River Basin in Cooke County. The reservoir has permitted conservation storage of 23,210 acre-feet. The City of Gainesville holds water rights in the reservoir for 7,740 acre-feet per year. According to the WAM, the available supply from Moss Lake in 2060 is 7,410 acre-feet per year. The available supply from Moss Lake has increased from what was shown in the 2006 *Region C Water Plan* (1) because the City of Gainesville increased their water right from 4,500 acre-feet per year to 7,740 acre-feet per year.

Texoma (Texas' share). Lake Texoma is located along the Texas and Oklahoma border in the Red River Basin in Grayson and Cooke Counties. The permitted conservation storage for water supply in Texas is 300,000 acre-feet. Red River Authority, Greater Texoma Utility Authority, Denison, North Texas Municipal Water District, and Luminant all hold water rights in the reservoir. Since the 2006 *Region C Water Plan* (1), Luminant increased its Lake Texoma water right by 6,400 acre-feet per year, GTUA increased its Lake Texoma water right by 56,500 acre-feet per year, and North Texas Municipal Water District increased its water right by 113,000 acre-feet per year and increased its permitted storage by 100,000 acre-feet. The total Texoma supply available to Region C as of 2060 is 314,850 acre-feet per year (2,250 acre-feet per year for Red River Authority; 81,500 acre-feet per year for Greater Texoma Utility Authority; 24,400 acre-feet per year for Denison; 190,300 acre-feet per year for NTMWD; and 16,400 acre-feet per year for Luminant). In the case of Texoma, the available supply is limited to the water right amount. The firm yield of Texas' share of Lake Texoma is 643,625 acre-feet per year in 2000, decreasing to 640,575 acre-feet per year by 2060.

Randell. Randell Reservoir is located on an unnamed tributary of Shawnee Creek in the Red River Basin in Grayson County. The reservoir has permitted conservation storage of 5,400 acre-feet. The City of Denison holds a water right in the reservoir for 5,280 acre-feet per year. The supply from Lake Randell is backed up by up to 24,400 acre-feet per year of diversions from Lake Texoma, which are fully reliable. The available supply from Randell Reservoir as of 2060 is 1,400 acre-feet per year without a backup from Lake Texoma. The decrease from the available supply shown in the 2006 *Region C Water Plan* (1) is due to a change in how the firm yield of Randell Reservoir is reported (without a backup from Lake Texoma).

Valley. Valley Lake is located on Sand Creek in the Red River Basin in Fannin and Grayson Counties. The reservoir has a permitted conservation storage of 15,000 acre-feet. This reservoir is operated by Luminant for steam electric power cooling in conjunction with their water right in Lake Texoma. The total amount of water that can be diverted from either Texoma or Valley Lake is 16,400 acre-feet per year. During drought, it is assumed that the full permitted diversion would be taken from Lake Texoma (see Lake Texoma discussion). Therefore the available supply from Valley Lake is 0 acre-feet per year.

Bonham. Lake Bonham is located on Timber Creek in the Red River Basin in Fannin County. The reservoir has permitted conservation storage of 13,000 acre-feet. The City of Bonham holds a water right in the reservoir for 5,340 acre-feet per year. The NTMWD has an agreement with the City of Bonham to operate the lake and water treatment plant. According to the WAM, the firm yield of Lake Bonham is 6,500 acre-feet per year in 2000, decreasing to 5,800 acre-feet per year by 2060. The available supply from Lake Bonham is limited to the permitted amount of 5,340 acre-feet per year. The increase from the available supply shown in the 2006 *Region C Water Plan* (1) is due to using a lower sedimentation rate, which was calculated using the 2004 volumetric survey of Lake Bonham.

Ray Roberts (Denton). Lake Ray Roberts and Lake Lewisville were modeled to find the firm yields of Denton's water rights. Lake Ray Roberts is located on the Elm Fork of the Trinity River in Denton, Cooke, and Grayson Counties. The reservoir has a permitted conservation storage of 799,600 acre-feet. The City of Dallas and the City of Denton hold combined water rights in the reservoir totaling 799,600 acre-feet per year, which is much greater than the actual yield of the reservoir. Dallas' share of Lake Ray Roberts was discussed above under *Water Supply Systems*. According to the WAM, Denton's available supply from Ray Roberts as of 2060 is 17,680 acre-feet per year.

Lewisville (Denton). Lake Lewisville is located on the Elm Fork of the Trinity River in Denton County. The reservoir has a permitted conservation storage of 618,400 acre-feet. The City of Dallas and the City of Denton hold combined water rights in the reservoir totaling 598,900 acre-feet per year, which is much greater than the actual yield of the reservoir. Dallas' share of Lake Lewisville was discussed above under *Water Supply Systems*. According to the WAM, Denton's available supply from Lewisville as of 2060 is 7,410 acre-feet per year.

Benbrook. Lake Benbrook is located on the Clear Fork of the Trinity River in Tarrant County. The reservoir has a permitted conservation storage of 72,500 acre-feet. The authorized use from Lake Benbrook is 6,833 acre-feet per year. Tarrant Regional Water District holds the water right, which specifies use amounts for Benbrook Water and Sewer Authority, City of Fort Worth, and City of Weatherford. According to the WAM, the firm yield of Lake Benbrook is 7,280 acre-feet per year in 2000, decreasing to 6,833 acre-feet per year by 2060. The available supply from Lake Benbrook is limited to the permitted amount of 6,833 acre-feet per year. Lake Benbrook is used as terminal storage for water pumped from Cedar Creek and Richland Chambers Reservoirs. The available supply does not include water from these sources.

Weatherford. Lake Weatherford is located on the Clear Fork of the Trinity River in Parker County. The reservoir has permitted conservation storage of 19,470 acre-feet. The City of Weatherford holds a water right for consumptive use 5,220 acre-feet per year. (The permit also authorizes 59,400 acre-feet per year of non-consumptive industrial use.) According to the WAM, available supply from Lake Weatherford as of 2060 is 2,750 acre-feet per year.

Grapevine. Lake Grapevine is located on Denton Creek in the Trinity River Basin in Tarrant and Denton Counties. The reservoir has a permitted conservation storage of 161,250 acre-feet. City of Dallas, City of Grapevine, and Dallas County Park Cities MUD hold combined water rights in the reservoir totaling 161,250 acre-feet per year, which is much greater than the actual yield of the reservoir. Dallas' share of Lake Grapevine was discussed above under *Water Supply Systems*. According to the WAM, Dallas County PCMUD's available supply from Lake Grapevine as of 2060 is 16,300 acre-feet per year, and the City of Grapevine's available supply from Lake Grapevine as of 2060 is 1,850 acre-feet per year. The increase in available supply from the available supply shown in the 2006 *Region C Water Plan* (1) is due to a change made in the TCEQ Trinity WAM to reallocate reservoir evaporation.

Arlington. Lake Arlington is located on Village Creek in the Trinity River Basin in Tarrant County. The reservoir has a permitted conservation storage of 45,710 acre-feet. The City of Arlington and Luminant jointly hold a water right for 23,120 acre-feet per year (13,000 acre-feet per year for Arlington and 10,120 acre-feet per year for Luminant). According to the WAM, available supply from Lake Arlington as of 2060 is 9,100 acre-feet per year. Like Lake Benbrook, Lake Arlington serves as terminal storage for water pumped from Richland-Chambers and Cedar Creek Reservoirs. The available supply from Lake Arlington does not include water from these sources.

Joe Pool. Joe Pool Lake is located on Mountain Creek in the Trinity River Basin in Dallas and Tarrant Counties. The reservoir has a permitted conservation storage of 176,900 acre-feet. The Trinity River Authority holds a water right for 17,000 acre-feet per year. According to the WAM, available supply from Joe Pool Lake as of 2060 is 13,650 acre-feet per year. The available supply is higher than what was shown in the 2006 *Region C Water Plan* (1) because a lower sedimentation rate was used.

Mountain Creek. Mountain Creek Lake is located on Mountain Creek in the Trinity River Basin in Dallas County. The reservoir has a permitted conservation storage of 22,840 acre-feet. Luminant holds a water right for 6,400 acre-feet per year. According to the WAM, the firm yield of Mountain Creek Lake is 13,300 acre-feet per year in 2000, decreasing to 11,700 acre-feet per year by 2060. The available supply from Mountain Creek Lake is limited to the permitted amount of 6,400 acre-feet per year.

North. North Lake is an off-channel reservoir located on the South Fork of Grapevine Creek in the Trinity River Basin in Dallas County. The reservoir has a permitted conservation storage of 17,100 acre-feet. Luminant holds a water right for 1,000 acre-feet per year. According to the WAM, available supply from North Lake as of 2060 is 0 acre-feet per year without backup from the Elm Fork.

Ray Hubbard. Lake Ray Hubbard is located on the Elm Fork of the Trinity River in Dallas, Kaufman, and Rockwall Counties. The reservoir has a permitted conservation storage of 490,000 acre-feet. The City of Dallas holds a water right for 89,700 acre-feet per year. According to the WAM, available supply from Ray Hubbard as of 2000 is 58,740 acre-feet per year in 2000, decreasing to 50,860 acre-feet per year by 2060. The available supply is less than what was shown in the 2006 *Region C Water Plan*[1] because a higher sedimentation rate based on the 2005 volumetric survey for Lake Ray Hubbard was used.

White Rock. White Rock Lake is located on White Rock Creek in the Trinity River Basin in Dallas County. The reservoir has a permitted conservation storage of 21,345 acre-feet. The City of Dallas holds a water right for 8,703 acre-feet per year. According to the WAM, available supply from White Rock Lake as of 2060 is 2,000 acre-feet per year.

Terrell. Lake Terrell is located on Muddy Cedar Creek in the Trinity River Basin in Kaufman County. The reservoir has a permitted conservation storage of 8,712 acre-feet. The City of Terrell holds a water right for 6,000 acre-feet per year. According to the WAM, available supply from Terrell as of 2060 is 2,200 acre-feet per year.

Clark. Lake Clark is located on Little Mustang Creek in the Trinity River Basin in Ellis County. The reservoir has a permitted conservation storage of 1,549 acre-feet. The City of Ennis holds a water right for 450 acre-feet per year. According to the WAM, available supply from Lake Clark as of 2060 is 210 acre-feet per year. The City of Ennis no longer uses water from Lake Clark.

Bardwell. Lake Bardwell is located on Waxahachie Creek in the Trinity River Basin in Ellis County. The reservoir has a permitted conservation storage of 54,900 acre-feet. The Trinity River Authority holds a water right for 14,729 acre-feet per year (which includes reuse of up to 5,129 acre-feet per year of return flows). According to the WAM, the firm yield of Lake Bardwell is 10,590 acre-feet per year in 2000, decreasing to 8,000 acre-feet per year by 2060. The available supply from Lake Bardwell is the smaller of the firm yield or the permitted amount of 9,600 acre-feet per year without return flows. The available supply is higher than what was shown in the 2006 *Region C Water Plan* [1] because a lower sedimentation rate based on the 1999 volumetric survey for Lake Bardwell was used.

Waxahachie. Lake Waxahachie is located on Waxahachie Creek in the Trinity River Basin in Ellis County. The reservoir has a permitted conservation storage of 13,500 acre-feet. Ellis County Water Control and Improvement District #1 holds a water right for 3,570 acre-feet per year. According to the WAM, available supply from Lake Waxahachie as of 2060 is 2,380 acre-feet per year.

Forest Grove. Forest Grove Reservoir is located on Caney Creek in the Trinity River Basin in Henderson County. The reservoir has a permitted conservation storage of 20,038 acre-feet. Luminant holds a water right for 9,500 acre-feet per year (not including non-consumptive use). Presently, the dam for Forest Grove Reservoir is built, but the lake has not begun to store water. According to the WAM, available supply from Forest Grove as of 2060 is 8,400 acre-feet per year.

Trinidad City Lake. Trinidad City Lake is located on Cedar Creek in the Trinity River Basin in Henderson County. The reservoir has a permitted conservation storage of 498 acre-feet. The City of Trinidad holds a water right for 1,000 acre-feet per year. According to the WAM, available supply from Trinidad City Lake as of 2060 is 450 acre-feet per year.

Trinidad. Lake Trinidad is an off-channel reservoir located just off the Trinity River in Henderson County. The reservoir has a permitted conservation storage of 6,200 acre-feet. Luminant holds a water right for 4,000 acre-feet per year. According to the WAM, available supply from Lake Trinidad as of 2060 is 3,050 acre-feet per year. However, access to return flows in the watershed make the Lake Trinidad permitted supply reliable.

Navarro Mills. Lake Navarro Mills is located on Richland Creek in the Trinity River Basin in Navarro County. The reservoir has a permitted conservation storage of 63,300 acre-feet. The Trinity River Authority holds a water right for 19,400 acre-feet per year. According to the WAM, available supply from Navarro Mills as of 2060 is 14,300 acre-feet per year.

Fairfield. Lake Fairfield is located on Big Brown Creek in the Trinity River Basin in Freestone County. The reservoir has a permitted conservation storage of 50,600 acre-feet. Luminant holds a water right for 14,150 acre-feet per year. According to the WAM, available supply from Lake Fairfield as of 2060 is 870 acre-feet per year with a minimum operating level of 305.0 feet msl and without backup from the Trinity River.

Bryson. Lake Bryson is located on East Rock Creek in the Brazos River Basin in Jack County. The reservoir has a permitted conservation storage of 950 acre-feet. The City of

Bryson holds a water right for 90 acre-feet per year. According to the WAM, available supply from Bryson as of 2060 is 0 acre-feet per year.

Mineral Wells. Lake Mineral Wells is located on Rock Creek in the Brazos River Basin in Parker County. The reservoir has a permitted conservation storage of 7,065 acre-feet. The City of Mineral Wells holds a water right for 2,520 acre-feet per year. According to the WAM, available supply from Mineral Wells as of 2060 is 2,445 acre-feet per year. The City of Mineral Wells no longer uses water from Lake Mineral Wells.

Teague City Lake. Teague City Lake is located on Holman Creek in the Brazos River Basin in Freestone County. The reservoir has permitted conservation storage of 1,160 acre-feet. The City of Teague holds a water right for 605 acre-feet per year. According to the WAM, available supply from Teague City Lake as of 2060 is 189 acre-feet per year. The City of Teague no longer uses Teague City Lake for water supply.

Lavon. Lake Lavon is located on the East Fork of the Trinity River in Collin County. The reservoir has permitted conservation storage of 443,800 acre-feet. North Texas Municipal Water District holds water rights for 118,670 acre-feet per year. According to the WAM, the available supply from Lake Lavon is 113,300 acre-feet per year in 2000, decreasing to 105,700 acre-feet per year by 2060. This yield does not include return flows or imported water.

UNPERMITTED YIELDS IN REGION C RESERVOIRS

According to the WAMs, there are eight reservoirs and one reservoir system in Region C with firm yields that exceed the currently permitted diversion amounts. These reservoirs with their unpermitted yields are listed in Table I.4. Note that the Oklahoma share of Lake Texoma yield is not included in the table. The unpermitted Oklahoma yield in Lake Texoma would be about 635,781 acre-feet per year in 2060.

Table I.4
Unpermitted Yields in Region C Reservoirs

Reservoir	Basin	Unpermitted Yield, acre-feet per year						
		2000	2010	2020	2030	2040	2050	2060
Lost Creek/Jacksboro System	Trinity	913	900	886	873	860	846	833
Cedar Creek	Trinity	36,900	35,783	34,667	33,550	32,433	31,317	30,200
Richland Chambers	Trinity	18,300	15,383	12,467	9,550	6,633	3,717	800
Lake Texoma (Texas' Share)	Red	385,275	328,267	327,758	327,250	326,742	326,233	325,725
Benbrook	Trinity	447	373	298	224	149	75	0
Bonham	Red	1,160	1,043	927	810	693	577	460
Mountain Creek	Trinity	6,900	6,633	6,367	6,100	5,833	5,567	5,300
Bardwell	Trinity	990	558	127	0	0	0	0
Navarro Mills	Trinity	950	0	0	0	0	0	0

Groundwater

Groundwater in Region C is obtained from two major aquifers, four minor aquifers and locally undifferentiated formations referred to as "other aquifer". The two major aquifers are the Trinity and Carrizo-Wilcox aquifers. The three minor aquifers are the Woodbine, Queen City, and Nacatoch aquifers.

The TWDB created sixteen Groundwater Management Areas in Texas. GMA 8 covers all of Region C except for Jack County, Henderson County, and a small portion of Navarro County. The GMAs are responsible for developing Desired Future Conditions (DFCs) for aquifers within their respective areas. The TWDB quantifies Managed Available Groundwater (MAG) based on the DFCs provided by the GMAs. If MAG numbers were available for an aquifer as of January 1, 2009, the regional water planning groups must use these estimates as the basis for existing groundwater supplies [(2)]. MAG estimates were available for the Woodbine aquifer prior to the January 1st deadline. MAG estimates were available for the Trinity aquifer in March of 2009. The DFCs for the Nacatoch aquifer have been submitted, but the MAG estimates are not yet available. Neither DFCs nor MAG estimates are available for the Carrizo-Wilcox or Queen City aquifers.

There are currently seven Groundwater Conservation Districts (GCDs) that include one or more counties in Region C:

- Upper Trinity GCD (Wise and Parker Counties)

- Northern Trinity GCD (Tarrant County)
- Neches and Trinity Valleys GCD (Henderson County)
- Mid-East Texas GCD (Freestone County)
- Prairielands GCD (Ellis County)
- North Texas GCD (Collin, Cooke, and Denton Counties)
- Red River GCD (Grayson and Fannin Counties)

The available supply from the Trinity and Woodbine aquifers is based on the MAG estimates provided by the TWDB (4,5). The available supply from the Carrizo-Wilcox aquifer is assumed to be the same as was shown in the 2006 *Region C Water Plan* (1) and is based on minimal lowering of the water table from current levels over the planning period. The groundwater availability for the other minor aquifers and "other aquifer" are also assumed to be the same as was shown in the 2006 *Region C Water Plan* (1). Table I.5 details the groundwater availability for Region C.

The overall groundwater availability in Region C is 39,692 acre-feet per year greater than the availability shown in the 2006 *Region C Water Plan* (1). This increase is due to the increased availability in the Trinity and Woodbine aquifers based on MAG estimates provided by the TWDB (4,5). The most significant increases to groundwater availability are in the western-most counties of Region C. Figure I.1 compares the Region C Trinity and Woodbine groundwater availability from the TWDB 2009 MAG estimates to the availability reported in the 2006 *Region C Water Plan* (1). Figure I.2 compares the total groundwater availability in the Trinity and Woodbine aquifers for various counties in Region C. Figure I.2 also includes an estimate of total groundwater use in 2004 for each county.

Table I.5
Groundwater Availability for Region C
(Acre-Feet per Year)

Aquifer	County	Basin	Revised Groundwater Availability							Groundwater Availability in 2006 Plan							Change in Groundwater Availability since 2006 Plan						
			2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060
Other	Collin	Sabine	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0	0
Other	Collin	Trinity	134	134	134	134	134	134	134	134	134	134	134	134	134	134	0	0	0	0	0	0	0
Trinity	Collin	Sabine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinity	Collin	Trinity	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	0	0	0	0	0	0	0
Woodbine	Collin	Sabine	40	40	40	40	40	40	40	130	130	130	130	130	130	130	(90)	(90)	(90)	(90)	(90)	(90)	(90)
Woodbine	Collin	Trinity	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,370	2,370	2,370	2,370	2,370	2,370	2,370	99	99	99	99	99	99	99
	Collin		**4,748**	**4,748**	**4,748**	**4,748**	**4,748**	**4,748**	**4,748**	**4,739**	**4,739**	**4,739**	**4,739**	**4,739**	**4,739**	**4,739**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Other	Cooke	Red	237	237	237	237	237	237	237	237	237	237	237	237	237	237	0	0	0	0	0	0	0
Other	Cooke	Trinity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinity	Cooke	Red	1,284	1,284	1,284	1,284	1,284	1,284	1,284	950	950	950	950	950	950	950	334	334	334	334	334	334	334
Trinity	Cooke	Trinity	5,566	5,566	5,566	5,566	5,566	5,566	5,566	5,450	5,450	5,450	5,450	5,450	5,450	5,450	116	116	116	116	116	116	116
Woodbine	Cooke	Red	18	18	18	18	18	18	18	0	0	0	0	0	0	0	18	18	18	18	18	18	18
Woodbine	Cooke	Trinity	136	136	136	136	136	136	136	0	0	0	0	0	0	0	136	136	136	136	136	136	136
	Cooke		**7,241**	**7,241**	**7,241**	**7,241**	**7,241**	**7,241**	**7,241**	**6,637**	**6,637**	**6,637**	**6,637**	**6,637**	**6,637**	**6,637**	**604**	**604**	**604**	**604**	**604**	**604**	**604**
Other	Dallas	Trinity	593	593	593	593	593	593	593	593	593	593	593	593	593	593	0	0	0	0	0	0	0
Trinity	Dallas	Trinity	5,458	5,458	5,458	5,458	5,458	5,458	5,458	4,400	4,400	4,400	4,400	4,400	4,400	4,400	1,058	1,058	1,058	1,058	1,058	1,058	1,058
Woodbine	Dallas	Trinity	2,313	2,313	2,313	2,313	2,313	2,313	2,313	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,213	1,213	1,213	1,213	1,213	1,213	1,213
	Dallas		**8,364**	**8,364**	**8,364**	**8,364**	**8,364**	**8,364**	**8,364**	**6,093**	**6,093**	**6,093**	**6,093**	**6,093**	**6,093**	**6,093**	**2,271**	**2,271**	**2,271**	**2,271**	**2,271**	**2,271**	**2,271**
Other	Denton	Trinity	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0	0
Trinity	Denton	Trinity	19,333	19,333	19,333	19,333	19,333	19,333	19,333	10,400	10,400	10,400	10,400	10,400	10,400	10,400	8,933	8,933	8,933	8,933	8,933	8,933	8,933
Woodbine	Denton	Trinity	4,126	4,126	4,126	4,126	4,126	4,126	4,126	4,700	4,700	4,700	4,700	4,700	4,700	4,700	(574)	(574)	(574)	(574)	(574)	(574)	(574)
	Denton		**23,464**	**23,464**	**23,464**	**23,464**	**23,464**	**23,464**	**23,464**	**15,105**	**15,105**	**15,105**	**15,105**	**15,105**	**15,105**	**15,105**	**8,359**	**8,359**	**8,359**	**8,359**	**8,359**	**8,359**	**8,359**
Other	Ellis	Trinity	139	139	139	139	139	139	139	139	139	139	139	139	139	139	0	0	0	0	0	0	0
Trinity	Ellis	Trinity	3,959	3,959	3,959	3,959	3,959	3,959	3,959	4,000	4,000	4,000	4,000	4,000	4,000	4,000	(41)	(41)	(41)	(41)	(41)	(41)	(41)
Woodbine	Ellis	Trinity	5,441	5,441	5,441	5,441	5,441	5,441	5,441	4,400	4,400	4,400	4,400	4,400	4,400	4,400	1,041	1,041	1,041	1,041	1,041	1,041	1,041
	Ellis		**9,539**	**9,539**	**9,539**	**9,539**	**9,539**	**9,539**	**9,539**	**8,539**	**8,539**	**8,539**	**8,539**	**8,539**	**8,539**	**8,539**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
Trinity	Fannin	Red	617	617	617	617	617	617	617	0	0	0	0	0	0	0	617	617	617	617	617	617	617
Trinity	Fannin	Sulphur	0	0	0	0	0	0	0	601	601	601	601	601	601	601	(601)	(601)	(601)	(601)	(601)	(601)	(601)
Trinity	Fannin	Trinity	83	83	83	83	83	83	83	99	99	99	99	99	99	99	(16)	(16)	(16)	(16)	(16)	(16)	(16)
Woodbine	Fannin	Red	2,676	2,676	2,676	2,676	2,676	2,676	2,676	2202	2202	2199	2199	2198	2198	2197	474	474	477	477	478	478	479
Woodbine	Fannin	Sulphur	21	21	21	21	21	21	21	568	568	571	571	572	572	573	(547)	(547)	(550)	(550)	(551)	(551)	(552)
Woodbine	Fannin	Trinity	600	600	600	600	600	600	600	530	530	530	530	530	530	530	70	70	70	70	70	70	70
Other	Fannin	Red	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	2,919	0	0	0	0	0	0	0
	Fannin		**6,916**	**6,916**	**6,916**	**6,916**	**6,916**	**6,916**	**6,916**	**6,919**	**6,919**	**6,919**	**6,919**	**6,919**	**6,919**	**6,919**	**(3)**	**(3)**	**(3)**	**(3)**	**(3)**	**(3)**	**(3)**

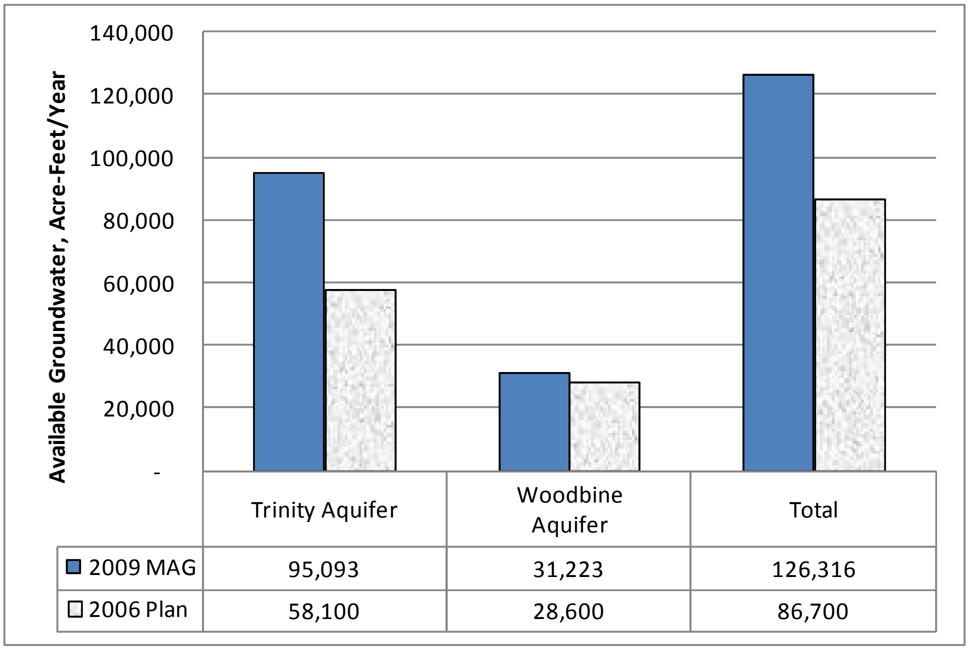
Table I.5, Continued

Aquifer	County	Basin	Revised Groundwater Availability							Groundwater Availability in 2006 Plan							Change in Groundwater Availability since 2006 Plan						
			2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060
Carrizo-Wilcox	Freestone	Trinity	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	5,578	0	0	0	0	0	0	0
Carrizo-Wilcox	Freestone	Brazos	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	0	0	0	0	0	0	0
Other	Freestone	Trinity	51	51	51	51	51	51	51	51	51	51	51	51	51	51	0	0	0	0	0	0	0
Other	Freestone	Brazos	21	21	21	21	21	21	21	21	21	21	21	21	21	21	0	0	0	0	0	0	0
Queen City	Freestone	Trinity	345	345	345	345	345	345	345	345	345	345	345	345	345	345	0	0	0	0	0	0	0
Queen City	Freestone	Brazos	48	48	48	48	48	48	48	48	48	48	48	48	48	48	0	0	0	0	0	0	0
	Freestone		**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**7,118**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Other	Grayson	Red	35	35	35	35	35	35	35	35	35	35	35	35	35	35	0	0	0	0	0	0	0
Other	Grayson	Trinity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinity	Grayson	Red	7,722	7,722	7,722	7,722	7,722	7,722	7,722	6,700	6,797	6,849	6,875	6,890	6,900	6,901	1,022	925	873	847	832	822	821
Trinity	Grayson	Trinity	1,678	1,678	1,678	1,678	1,678	1,678	1,678	2,700	2,603	2,552	2,525	2,510	2,500	2,499	(1,022)	(925)	(874)	(847)	(832)	(822)	(821)
Woodbine	Grayson	Red	6,590	6,590	6,590	6,590	6,590	6,590	6,590	6,380	6,310	6,288	6,277	6,272	6,267	6,265	210	280	302	313	318	323	325
Woodbine	Grayson	Trinity	5,497	5,497	5,497	5,497	5,497	5,497	5,497	5,720	5,790	5,812	5,823	5,828	5,833	5,835	(223)	(293)	(315)	(326)	(331)	(336)	(338)
	Grayson		**21,522**	**21,522**	**21,522**	**21,522**	**21,522**	**21,522**	**21,522**	**21,535**	**21,535**	**21,536**	**21,535**	**21,535**	**21,535**	**21,535**	**(13)**	**(13)**	**(14)**	**(13)**	**(13)**	**(13)**	**(13)**
Carrizo-Wilcox	Henderson	Trinity	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	5,370	0	0	0	0	0	0	0
Nacatoch	Henderson	Trinity	10	10	10	10	10	10	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0
Other	Henderson	Trinity	167	167	167	167	167	167	167	167	167	167	167	167	167	167	0	0	0	0	0	0	0
Queen City	Henderson	Trinity	480	480	480	480	480	480	480	480	480	480	480	480	480	480	0	0	0	0	0	0	0
	Henderson		**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**6,027**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Other	Jack	Brazos	284	284	284	284	284	284	284	284	284	284	284	284	284	284	0	0	0	0	0	0	0
Other	Jack	Trinity	650	650	650	650	650	650	650	650	650	650	650	650	650	650	0	0	0	0	0	0	0
Trinity	Jack	Trinity	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
Trinity	Jack	Brazos	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
	Jack		**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**1,034**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Nacatoch	Kaufman	Sabine	10	10	10	10	10	10	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0
Nacatoch	Kaufman	Trinity	308	308	308	308	308	308	308	308	308	308	308	308	308	308	0	0	0	0	0	0	0
Other	Kaufman	Sabine	124	124	124	124	124	124	124	124	124	124	124	124	124	124	0	0	0	0	0	0	0
Other	Kaufman	Trinity	87	87	87	87	87	87	87	87	87	87	87	87	87	87	0	0	0	0	0	0	0
Trinity	Kaufman	Sabine	45	45	45	45	45	45	45	0	0	0	0	0	0	0	45	45	45	45	45	45	45
Trinity	Kaufman	Trinity	1,136	1,136	1,136	1,136	1,136	1,136	1,136	0	0	0	0	0	0	0	1,136	1,136	1,136	1,136	1,136	1,136	1,136
Woodbine	Kaufman	Trinity	200	200	200	200	200	200	200	200	200	200	200	200	200	200	0	0	0	0	0	0	0
	Kaufman		**1,910**	**1,910**	**1,910**	**1,910**	**1,910**	**1,910**	**1,910**	**729**	**729**	**729**	**729**	**729**	**729**	**729**	**1,181**	**1,181**	**1,181**	**1,181**	**1,181**	**1,181**	**1,181**

Table I.5, Continued

Aquifer	County	Basin	Revised Groundwater Availability							Groundwater Availability in 2006 Plan							Change in Groundwater Availability since 2006 Plan						
			2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060	2000	2010	2020	2030	2040	2050	2060
Carrizo-Wilcox	Navarro	Trinity	180	180	180	180	180	180	180	180	180	180	180	180	180	180	0	0	0	0	0	0	0
Nacatoch	Navarro	Trinity	229	229	229	229	229	229	229	229	229	229	229	229	229	229	0	0	0	0	0	0	0
Other	Navarro	Trinity	104	104	104	104	104	104	104	104	104	104	104	104	104	104	0	0	0	0	0	0	0
Trinity	Navarro	Trinity	1,873	1,873	1,873	1,873	1,873	1,873	1,873	0	0	0	0	0	0	0	1,873	1,873	1,873	1,873	1,873	1,873	1,873
Woodbine	Navarro	Trinity	300	300	300	300	300	300	300	300	300	300	300	300	300	300	0	0	0	0	0	0	0
	Navarro		**2,686**	**2,686**	**2,686**	**2,686**	**2,686**	**2,686**	**2,686**	**813**	**813**	**813**	**813**	**813**	**813**	**813**	**1,873**	**1,873**	**1,873**	**1,873**	**1,873**	**1,873**	**1,873**
Other	Parker	Trinity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	Parker	Brazos	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
Trinity	Parker	Trinity	12,449	12,449	12,449	12,449	12,449	12,449	12,449	2,100	2,100	2,255	2,300	2,300	2,300	2,300	10,349	10,349	10,194	10,149	10,149	10,149	10,149
Trinity	Parker	Brazos	2,799	2,799	2,799	2,799	2,799	2,799	2,799	4,900	4,900	4,745	4,700	4,700	4,700	4,700	(2,101)	(2,101)	(1,946)	(1,901)	(1,901)	(1,901)	(1,901)
	Parker		**15,298**	**15,298**	**15,298**	**15,298**	**15,298**	**15,298**	**15,298**	**7,050**	**7,050**	**7,050**	**7,050**	**7,050**	**7,050**	**7,050**	**8,248**	**8,248**	**8,248**	**8,248**	**8,248**	**8,248**	**8,248**
Nacatoch	Rockwall	Trinity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Trinity	Rockwall	Trinity	958	958	958	958	958	958	958	0	0	0	0	0	0	0	958	958	958	958	958	958	958
Woodbine	Rockwall	Trinity	144	144	144	144	144	144	144	0	0	0	0	0	0	0	144	144	144	144	144	144	144
Other	Rockwall	Sabine	187	187	187	187	187	187	187	187	187	187	187	187	187	187	0	0	0	0	0	0	0
Other	Rockwall	Trinity	21	21	21	21	21	21	21	21	21	21	21	21	21	21	0	0	0	0	0	0	0
	Rockwall		**1,311**	**1,311**	**1,311**	**1,311**	**1,311**	**1,311**	**1,311**	**209**	**209**	**209**	**209**	**209**	**209**	**209**	**1,102**	**1,102**	**1,102**	**1,102**	**1,102**	**1,102**	**1,102**
Other	Tarrant	Trinity	207	207	207	207	207	207	207	207	207	207	207	207	207	207	0	0	0	0	0	0	0
Trinity	Tarrant	Trinity	18,747	18,747	18,747	18,747	18,747	18,747	18,747	9,200	9,200	9,200	9,200	9,200	9,200	9,200	9,547	9,547	9,547	9,547	9,547	9,547	9,547
Woodbine	Tarrant	Trinity	632	632	632	632	632	632	632	0	0	0	0	0	0	0	632	632	632	632	632	632	632
	Tarrant		**19,586**	**19,586**	**19,586**	**19,586**	**19,586**	**19,586**	**19,586**	**9,407**	**9,407**	**9,407**	**9,407**	**9,407**	**9,407**	**9,407**	**10,179**	**10,179**	**10,179**	**10,179**	**10,179**	**10,179**	**10,179**
Other	Wise	Trinity	106	106	106	106	106	106	106	106	106	106	106	106	106	106	0	0	0	0	0	0	0
Trinity	Wise	Trinity	9,282	9,282	9,282	9,282	9,282	9,282	9,282	4,400	4,400	4,400	4,400	4,400	4,400	4,400	4,882	4,882	4,882	4,882	4,882	4,882	4,882
	Wise		**9,388**	**9,388**	**9,388**	**9,388**	**9,388**	**9,388**	**9,388**	**4,506**	**4,506**	**4,506**	**4,506**	**4,506**	**4,506**	**4,506**	**4,882**	**4,882**	**4,882**	**4,882**	**4,882**	**4,882**	**4,882**
Region C Total			**146,152**	**146,152**	**146,152**	**146,152**	**146,152**	**146,152**	**146,152**	**106,460**	**106,460**	**106,460**	**106,460**	**106,460**	**106,460**	**106,460**	**39,692**	**39,692**	**39,692**	**39,692**	**39,692**	**39,692**	**39,692**

Figure I.1
Region C Groundwater Availability in the Trinity and Woodbine Aquifers

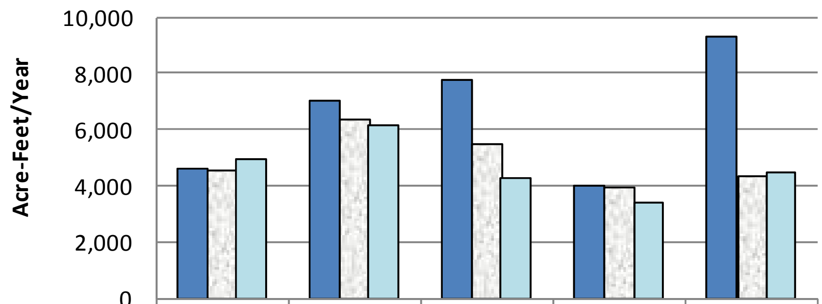


Irrigation Local Supply and Other Local Supply

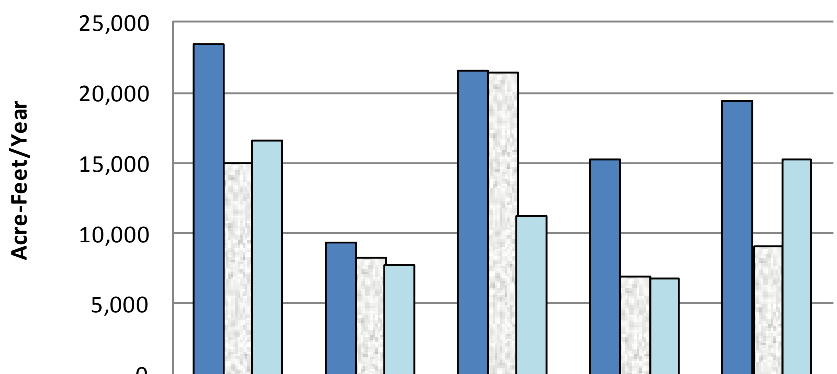
The local irrigation availability is based on existing run-of-the-river surface water rights for irrigation not associated with major reservoirs. The reliable supply from run-of-the-river diversions was assumed equal to the permitted diversion for water rights located on the main stem of the river and 75 percent of the permitted diversion for water rights located on tributaries.

Other local supply includes non-irrigation run-of-the-river supplies and mining and livestock local supplies that do not have a water right. Most surface water used for livestock is taken from unpermitted stock ponds or directly from streams. For livestock and mining local supply, the available supplies were assumed to be the same as shown in the 2006 *Region C Water Plan* (1). Table I.6 shows the available supply for irrigation and other local supply.

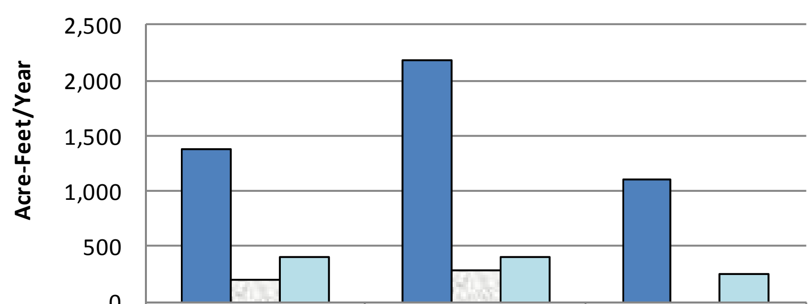
Figure I.2
Region C Groundwater Availability by County in the Trinity and Woodbine Aquifers



	Collin	Cooke	Dallas	Fannin	Wise
2009 MAG	4,613	7,004	7,771	3,997	9,282
2006 Plan	4,600	6,400	5,500	4,000	4,400
2004 GW Use	4,926	6,120	4,258	3,375	4,467



	Denton	Ellis	Grayson	Parker	Tarrant
2009 MAG	23,459	9,400	21,487	15,248	19,379
2006 Plan	15,100	8,400	21,500	7,000	9,200
2004 GW Use	16,618	7,759	11,216	6,752	15,182



	Kaufman	Navarro	Rockwall
2009 MAG	1,381	2,173	1,102
2006 Plan	200	300	0
2004 GW Use	410	396	252

Table I.6
Summary of Local Surface Water Supplies for Region C
(Acre-Feet per Year)

Use	County	Basin	2000	2010	2020	2030	2040	2050	2060
IRRIGATION RUN-OF-THE-RIVER SUPPLIES									
Irrigation	Cooke	Red	23	23	23	23	23	23	23
Irrigation	Fannin	Red	14,758	14,758	14,758	14,758	14,758	14,758	14,758
Irrigation	Grayson	Red	2,394	2,394	2,394	2,394	2,394	2,394	2,394
Irrigation	Fannin	Sulphur	0	0	0	0	0	0	0
Irrigation	Collin	Trinity	408	408	408	408	408	408	408
Irrigation	Cooke	Trinity	0	0	0	0	0	0	0
Irrigation	Dallas	Trinity	791	791	791	791	791	791	791
Irrigation	Denton	Trinity	0	0	0	0	0	0	0
Irrigation	Ellis	Trinity	3	3	3	3	3	3	3
Irrigation	Fannin	Trinity	0	0	0	0	0	0	0
Irrigation	Grayson	Trinity	0	0	0	0	0	0	0
Irrigation	Henderson	Trinity	415	415	415	415	415	415	415
Irrigation	Jack	Trinity	110	110	110	110	110	110	110
Irrigation	Kaufman	Trinity	64	64	64	64	64	64	64
Irrigation	Navarro	Trinity	226	226	226	226	226	226	226
Irrigation	Parker	Trinity	122	122	122	122	122	122	122
Irrigation	Rockwall	Trinity	0	0	0	0	0	0	0
Irrigation	Tarrant	Trinity	549	549	549	549	549	549	549
Irrigation	Wise	Trinity	139	139	139	139	139	139	139
Irrigation	Freestone	Trinity	87	87	87	87	87	87	87
Irrigation	Jack	Brazos	0	0	0	0	0	0	0
Irrigation	Parker	Brazos	117	117	117	117	117	117	117
Irrigation	Freestone	Brazos	0	0	0	0	0	0	0
SUBTOTAL			**20,205**	**20,205**	**20,205**	**20,205**	**20,205**	**20,205**	**20,205**

Table I.6, Continued

Use	County	Basin	2000	2010	2020	2030	2040	2050	2060
NON-IRRIGATION RUN-OF-THE-RIVER SUPPLIES									
Mining	Fannin	Red	72	72	72	72	72	72	72
Mining	Wise	Trinity	133	133	133	133	133	133	133
Municipal	Fannin	Red	20	20	20	20	20	20	20
Municipal	Fannin	Sulphur	49	49	49	49	49	49	49
Municipal	Freestone	Trinity	41	41	41	41	41	41	41
Municipal	Navarro	Trinity	252	252	252	252	252	252	252
Municipal	Parker	Trinity	33	33	33	33	33	33	33
Industrial	Dallas	Trinity	368	368	368	368	368	368	368
Industrial	Grayson	Red	30	30	30	30	30	30	30
Industrial	Tarrant	Trinity	959	959	959	959	959	959	959
LIVESTOCK AND MINING LOCAL SUPPLIES									
Livestock	Collin	Sabine	31	31	31	31	31	31	31
Livestock	Collin	Trinity	971	971	971	971	971	971	971
Livestock	Cooke	Red	380	380	380	380	380	380	380
Livestock	Cooke	Trinity	807	807	807	807	807	807	807
Livestock	Dallas	Trinity	712	712	712	712	712	712	712
Livestock	Denton	Trinity	935	935	935	935	935	935	935
Livestock	Ellis	Trinity	1,688	1,688	1,688	1,688	1,688	1,688	1,688
Livestock	Fannin	Red	1,139	1,139	1,139	1,139	1,139	1,139	1,139
Livestock	Fannin	Sulphur	364	364	364	364	364	364	364
Livestock	Fannin	Trinity	80	80	80	80	80	80	80
Livestock	Freestone	Brazos	83	83	83	83	83	83	83
Livestock	Freestone	Trinity	960	960	960	960	960	960	960
Livestock	Grayson	Red	1,077	1,077	1,077	1,077	1,077	1,077	1,077
Livestock	Grayson	Trinity	606	606	606	606	606	606	606
Livestock	Henderson	Trinity	341	341	341	341	341	341	341
Livestock	Jack	Brazos	450	450	450	450	450	450	450

Table I.6, Continued

Use	County	Basin	2000	2010	2020	2030	2040	2050	2060
LIVESTOCK AND MINING LOCAL SUPPLIES (Continued)									
Livestock	Jack	Trinity	1,215	1,215	1,215	1,215	1,215	1,215	1,215
Livestock	Kaufman	Sabine	98	98	98	98	98	98	98
Livestock	Kaufman	Trinity	1,524	1,524	1,524	1,524	1,524	1,524	1,524
Livestock	Navarro	Trinity	1,603	1,603	1,603	1,603	1,603	1,603	1,603
Livestock	Parker	Brazos	903	903	903	903	903	903	903
Livestock	Parker	Trinity	1,019	1,019	1,019	1,019	1,019	1,019	1,019
Livestock	Rockwall	Sabine	32	32	32	32	32	32	32
Livestock	Rockwall	Trinity	136	136	136	136	136	136	136
Livestock	Tarrant	Trinity	442	442	442	442	442	442	442
Livestock	Wise	Trinity	1,117	1,117	1,117	1,117	1,117	1,117	1,117
Mining	Collin	Trinity	195	195	195	195	195	195	195
Mining	Cooke	Red	77	77	77	77	77	77	77
Mining	Cooke	Trinity	160	160	160	160	160	160	160
Mining	Dallas	Trinity	1,525	1,525	1,525	1,525	1,525	1,525	1,525
Mining	Denton	Trinity	103	103	103	103	103	103	103
Mining	Freestone	Trinity	66	66	66	66	66	66	66
Mining	Jack	Trinity	370	370	370	370	370	370	370
Mining	Kaufman	Trinity	75	75	75	75	75	75	75
Mining	Parker	Brazos	17	17	17	17	17	17	17
Mining	Parker	Trinity	3	3	3	3	3	3	3
Mining	Rockwall	Sabine	33	33	33	33	33	33	33
Mining	Tarrant	Trinity	342	342	342	342	342	342	342
SUBTOTAL NON-IRRIGATION SUPPLIES			**23,701**	**23,701**	**23,701**	**23,701**	**23,701**	**23,701**	**23,701**
TOTAL RUN-OF-THE-RIVER AND LOCAL SUPPLIES			**43,906**	**43,906**	**43,906**	**43,906**	**43,906**	**43,906**	**43,906**

Reuse

The reuse quantities listed in Table I.1 are limited to currently permitted and operating indirect reuse projects and existing direct reuse for irrigation or industrial purposes. Table I.7 shows the individual reuse projects that make up the total reuse amount in Table I.1. These amounts reflect the results of a detailed study of existing and potential reuse projects in Region C. The topics addressed in the study included:

- Water reuse projects being performed under a Chapter 210 notification,
- Water reuse plans for large dischargers,
- Consolidation of water reuse plans into a regional plan
- Recent water right amendments involving reuse, and
- Existing reuse quantities

The findings of this study are presented below.

Water Reuse Projects Being Performed Under a Chapter 210 Reuse Authorization

Title 30, Chapter 210 of the Texas Administrative Code establishes general requirements, quality criteria, design, and operational requirements for direct reuse of reclaimed water. Before implementing a direct reuse project, the reclaimed water provider must notify the Executive Director of the Texas Commission on Environmental Quality (TCEQ) and obtain written approval to provide the reclaimed water. Table I.8 shows Region C entities that have notified the TCEQ of their intent to provide reclaimed water (as of July 2009) and have received a reuse authorization. Authorization does not necessarily mean that an entity has followed through and developed a reuse project. Detailed descriptions of projects operating under a Chapter 210 Authorization are provided below.

Azle. The City of Azle provides reclaimed water from its wastewater treatment plant for irrigation at the Cross Timbers Golf Course in Azle.

Crandall. The City of Crandall provides reclaimed water from the Crandall Wastewater Treatment Plant (WWTP) for irrigation at the Creekview Golf Club in Crandall.

Dallas. The City of Dallas provides reclaimed water from the Central WWTP for irrigation at Cedar Crest Golf Course in Dallas. The authorization also allows the use of reclaimed water for turf and landscape irrigation, maintenance of impoundments, soil compaction, and cooling tower makeup water.

Table I.7
Summary of Supplies Available from Reuse
(Acre-Feet per Year)

Provider	Project Name	User/Receiving Water	Type	County	2010	2020	2030	2040	2050	2060
Alcatel Network Systems	Alcatel Network Systems Reuse	internal reuse	direct	Dallas	20	20	20	20	20	20
Athens	Athens Fish Hatchery Reuse	Fish Hatchery	direct	Henderson	2,872	0	0	0	0	0
Azle	Azle Reuse	Cross Timbers Golf Course	direct	Tarrant	300	300	300	300	300	300
Bryson	Jack County Reuse	Clayton Ranch Irrigation	direct	Jack	27	27	26	26	25	25
Country Club WSC	Country Club WSC Reuse	Cedar Creek Country Club	direct	Kaufman	92	92	92	92	92	92
Crandall	Crandall Reuse	Creekview Golf Club	direct	Kaufman	484	666	666	666	666	666
Dallas	Cedar Crest Golf Course Reuse	Cedar Crest Golf Course	direct	Dallas	561	561	561	561	561	561
Dallas	Indirect Reuse	Dallas	indirect	Denton	29,961	42,046	53,147	60,646	69,861	85,000
DCPCMUD	Grapevine Reuse	Lake Grapevine	indirect	Tarrant	1,493	1,663	1,784	1,864	1,924	1,974
Deer Creek Waterworks/ Willow Park	Willow Park Reuse	Split Rails Links and Golf Club	direct	Parker	11	11	11	11	11	11
Denton	Denton Power Direct Reuse	City of Garland Steam Electric Power Plant, Denton Regional Medical Office Building, Caruthers Oil Co. Inc., Robert Donnelly, Day Surgery Center DRMC, Denton Landfill, Denton State School, Oakmont Country Club	direct	Denton	1,233	2,242	2,690	3,251	3,924	4,708
Denton	Denton Indirect Reuse	indirect reuse	indirect	Denton	1,682	8,861	11,557	12,907	12,726	12,545
Denton County FWSD#1/ UTRWD/Lewisville	UTRWD Reuse	Castle Hills Golf Course	direct	Denton	897	897	897	897	897	897
Ennis	Ennis Reuse	Tractabel Steam Electric Power Plant	direct	Ellis	800	800	800	800	800	800
Fort Worth	Village Creek Reuse	Waterchase Golf Course	direct	Tarrant	897	897	897	897	897	897
Gainesville	Kenetso Park Reuse	City of Gainesville - Keneteso Park	direct	Cooke	9	9	9	9	9	9

[1] County reflects location of reuse project.

Table I.7, Continued

Provider	Project Name	User/Receiving Water	Type	County[1]	2010	2020	2030	2040	2050	2060
Garland/Forney	Garland/Forney Reuse	FPLE Steam Electric Power Plant	direct	Kaufman	8,979	8,979	8,979	8,979	8,979	8,979
Grapevine	Grapevine Reuse	Lake Grapevine	indirect	Tarrant	1,824	2,033	2,180	2,278	2,352	2,412
Jacksboro	Jacksboro Reuse	City of Jacksboro Golf Course	indirect	Jack	385	385	385	385	385	385
Millsap WWTP	Millsap ISD Reuse	Millsap High School Athletic Fields	direct	Parker	2	2	2	2	2	2
NTMWD	Rowlett Creek Reuse	Los Rios Country Club, Golf Center of Plano, Pecan Hollow Municipal Golf Course	direct	Collin	1,540	1,540	1,540	1,540	1,540	1,540
NTMWD	Buffalo Creek Reuse	Buffalo Creek Golf Course	direct	Rockwall	672	672	672	672	672	672
NTMWD/Royse City	Royse City Reuse	Aaki Golf	direct	Rockwall	112	112	112	112	112	112
NTMWD	Wilson Creek Reuse	Lake Lavon	indirect	Collin	50,000	60,941	71,882	71,882	71,882	71,882
NTMWD	East Fork Reuse	Trinity River	indirect	Kaufman	51,790	67,148	87,102	102,000	102,000	102,000
NTMWD/Frisco	Stewart Creek West Reuse	Trails of Frisco Golf Course	direct	Collin	307	307	307	307	307	307
Pinnacle Club	Pinnacle Club Reuse	Pinnacle Club Golf Course	direct	Henderson	32	32	32	32	32	32
TRWD	Richland Chambers Reservoir Reuse Project	Richland Chambers	indirect	Navarro	10,000	10,000	10,000	10,000	10,000	10,000
The Colony	Collin County Reuse	Stonebriar Country Club	direct	Collin	380	380	380	380	380	380
TRA	Ten Mile Creek WWTP Reuse	Pecan Orchard	direct	Dallas	250	250	250	250	250	250
TRA	TRA/Waxahachie Reuse		indirect	Ellis	4,998	5,129	5,129	5,129	5,129	5,129
TRA/DCURD	Las Colinas Reuse	Las Colinas - golf course irrigation, landscape irrigation, and lake level maintenance	direct/ indirect	Dallas	8,000	8,000	8,000	8,000	8,000	8,000
Trophy Club	Denton County Golf Reuse	Trophy Club Country Club	direct	Denton	800	800	800	800	800	800
UTRWD	Lake Chapman Indirect Reuse	Lewisville Lake	indirect	Denton	6,634	6,634	6,634	6,634	6,634	6,634
Wise County	Wise County Mining Reuse	Mining	direct	Wise	15,930	14,074	12,152	10,643	9,236	8,061
Total					**203,974**	**246,510**	**289,995**	**312,972**	**321,405**	**336,082**

[1] County reflects location of reuse project.

Table I.8
Region C Entities That Have Received a Chapter 210 Reuse Authorization (6)

Permittee	County	Permit Number
City of Azle	Tarrant/Parker	Pending
City of Crandall	Kaufman	R10834-001
City of Dallas	Dallas	R10060-001
City of Dallas	Dallas	R10060-006
City of Denison	Grayson	R10079-005
City of Denton	Denton	R10027-003
City of Denton	Denton	R10027-004
City of Ennis	Ellis	R10443-002
City of Fort Worth	Tarrant	R10494-013
City of Frisco	Collin	R10172-003
City of Gainesville	Cooke	R10726-001
City of Garland	Kaufman	R10090-001
City of Grapevine	Tarrant	R10486-002
City of Lewisville	Denton	R10662-001
City of Royse City	Rockwall	R10366-001
City of Runaway Bay	Wise	R10862-001
City of Sanger	Denton	R10271-001
City of the Colony	Denton	R11570-001
City of Weatherford	Parker	R10380-002
City of Weatherford	Parker	R14198-001
Deer Creek Waterworks/ City of Willow Park	Parker	R13759-001/ R13834-001
Millsap ISD	Parker	R13357-001
Munson Point LTD	Grayson	R14487-001
North Texas Municipal Water District	Collin	R10363-001
North Texas Municipal Water District	Rockwall	R11894-001
North Texas Municipal Water District	Rockwall	R12047-001
North Texas Municipal Water District	Denton	R14008-001
North Texas Municipal Water District	Collin	R14245-001
North Texas Municipal Water District	Rockwall	R14469-001
Town of Flower Mound	Denton	R11321-001
Trinity River Authority	Dallas	R10303-001
Trinity River Authority	Dallas	R10984-001

Denison. The City of Denison previously provided reclaimed water from its Grayson County Airport WWTP for irrigation at the Grayson County College Golf Course; however, this project has been discontinued.

Denton. The City of Denton operates a non-potable reclaimed water system that supplies reclaimed water directly from its Pecan Creek Water Reclamation Plant (WRP) to several customers, including the City landfill, the Denton Regional Medical Center, Oakmont Country Club, the Denton State School, and the City of Garland's Spencer Generating Station. Primary uses include irrigation, dust control, and cooling water for steam electric power generation. Denton plans to expand its existing direct reuse program.

Ennis. The City of Ennis provides reclaimed water from its Oak Grove WWTP for cooling water for steam electric power generation at the Suez-Tractebel power plant in Ennis.

Fort Worth. The City of Fort Worth provides reclaimed water from its Village Creek WWTP for irrigation at the Links at Waterchase Golf Course in Fort Worth. By the end of 2010 it is anticipated that the Village Creek WWTP will also provide reclaimed water to the Cities of Arlington and Euless, Dallas-Fort Worth International Airport, and additional retail customers within the Fort Worth city limits.

Frisco. Reclaimed water is provided for irrigation purposes from the Stewart Creek West WWTP in Frisco to the Trails of Frisco Golf Club. NTMWD operates the Stewart Creek West WWTP.

Gainesville. The City of Gainesville irrigates athletic fields at Keneteso Park, a municipal park, with reclaimed water from its WWTP.

Garland. The City of Garland produces reclaimed water at its Duck Creek WWTP. The City sells reclaimed water to the City of Forney, which in turn provides the reclaimed water to the FPL Energy power plant near Forney. The authorization also allows the use of reclaimed water for irrigation of golf courses, sod farms, silviculture, and food crops.

Grapevine. Although the City of Grapevine does use reclaimed water, it does so indirectly by discharging reclaimed water from its Peach Street WWTP to Lake Grapevine and using raw water from Lake Grapevine for municipal and irrigation purposes. This reuse project is permitted under a water right and is not operated under the authority of the Chapter 210 reuse authorization.

Lewisville. The City of Lewisville produces reclaimed water at its WWTP. The City sells reclaimed water to the Upper Trinity Regional Water District, which in turn provides the reclaimed water to the Denton County Fresh Water Supply District No. 1 for irrigation at the Castle Hills Golf Club. The City is permitted to provide reclaimed water for maintenance of wetlands at the Lewisville Lake Environmental Learning Area. The authorization would also allow the use of reclaimed water for irrigation of a tree nursery and of landscaped areas within the city.

Royse City. Reclaimed water is provided for irrigation purposes from the Sabine Creek West WWTP in Royse City to Aaki Golf. NTMWD operates the Sabine Creek West WWTP.

Runaway Bay. The City of Runaway Bay reuse authorization would allow the use of reclaimed water for golf course irrigation. However, the golf course currently uses raw water for irrigation and has not implemented the reuse project.

Sanger. The City of Sanger reuse authorization would allow the use of reclaimed water for agricultural and golf course irrigation. The City intends to provide reclaimed water for irrigation at a golf course that has not yet been designed or constructed.

The Colony. The City of The Colony provides reclaimed water from its Stewart Creek WWTP for irrigation at Stonebriar Country Club in Frisco.

Weatherford. The City of Weatherford's authorization would allow the use of reclaimed water for cooling tower makeup water, gas industry use, soil compaction and dust control in construction areas, irrigation of animal feed crops (other than pastures for milking animals), fire protection, golf course irrigation, and maintenance of water features. The City previously provided reclaimed water for irrigation to the Crown Valley Country Club, but this project has been discontinued. The City may expand its system in the future to serve the natural gas industry.

Deer Creek Waterworks. The City of Willow Park owns Deer Creek Water Works which has a single water reuse customer. The Deer Creek Waterworks provides reclaimed water from its WWTP for irrigation at the Split Rail Golf Links in Aledo. The authorization also allows the use of reclaimed water for athletic field irrigation and horticultural use.

Millsap ISD. The Millsap Independent School District uses reclaimed water from its WWTP to irrigate its football field and land around the athletic fields. The District irrigates the football field with reclaimed water during the off-season when the field is not in use.

Munson Point LTD. Munson Point LTD has obtained a 210 authorization for a planned residential development near Lake Texoma.

North Texas Municipal Water District. The North Texas Municipal Water District has Chapter 210 authorizations for reclaimed water from the Buffalo Creek WWTP, Rowlett Creek WWTP, Sabine WWTP, Frisco Cottonwood Branch WWTP, the Shepards Glen WWTP, and the Stewart Creek West WWTP. The District does not operate reuse projects from the Frisco Cottonwood Branch or Shepards Glen WWTPs at this time. Reclaimed water is provided for irrigation purposes to the following users: Buffalo Creek Golf Course (from Buffalo Creek WWTP), Los Rios Country Club (from Rowlett Creek WWTP), Pecan Hollow Municipal Golf Course (from Rowlett Creek WWTP), Soccer Complex (from Rowlett Creek WWTP), Aaki Golf (from Sabine Creek West WWTP via Royse City), and the Trails of Frisco Golf Club (from Stewart Creek West WWTP via the City of Frisco).

Flower Mound. The Town of Flower Mound's reuse authorization would allow the use of reclaimed water for maintenance of impoundments or natural water bodies, toilet or urinal flush water, silviculture, soil compaction or dust control in construction areas, cooling tower makeup water, and irrigation. This project has not been implemented.

Trinity River Authority. The Trinity River Authority provides reclaimed water from its Central Regional Wastewater System plant to the Dallas County Utility and Reclamation District for golf course irrigation, landscape irrigation, and lake level maintenance in Las Colinas. The Authority has also received an authorization that would allow it to supply reclaimed water from the Ten Mile Creek Regional Wastewater System plant for steam-electric power generation process water, irrigation of a pecan grove, and maintenance of impoundments. Under this authorization, the Authority currently provides reclaimed water to South Creek Ranch for irrigation and maintenance of impoundments.

Water Reuse Plans for Large Dischargers

Table I.9 lists wastewater treatment plants that currently have an annual average flowrate of two million gallons per day (mgd) or more. In addition to the dischargers listed in Table I.9, several other dischargers are permitted to discharge more than 2 mgd but currently have annual average discharges of less than 2 mgd. Of the dischargers in Table I.9, the following have provided written reuse plans (some in draft form): Dallas, Flower

Mound, Fort Worth, Lewisville, North Texas Municipal Water District, and Weatherford. These reuse plans are summarized below. In addition to these dischargers, the Cities of Irving, Frisco and Arlington have developed reuse plans.

Table I.9
Region C Wastewater Dischargers That Currently Discharge 2 MGD or More (11)

Discharger	Plant	NPDES Number	County	2008 Annual Average Flow (MGD)
The Colony	Stewart Creek	TX0053112	Denton	2.40
Corsicana	STP No. 2	TX0056731	Navarro	2.71
Dallas	Dallas Southside	TX0047848	Dallas	60.84
Dallas	Dallas Central	TX0047830	Dallas	93.93
Denison	Paw Paw	TX0047228	Grayson	2.02
Denton	Pecan Creek	TX0047180	Denton	13.18
Flower Mound	Flower Mound	TX0020711	Denton	4.33
Fort Worth	Village Creek	TX0047295	Tarrant	106.35
Garland	Rowlett Creek	TX0024686	Dallas	17.23
Garland	Duck Creek	TX0024678	Dallas	10.17
Grapevine	Peach Street	TX0032018	Tarrant	3.42
Lewisville	Prairie Creek	TX0052892	Denton	7.65
NTMWD	Muddy Creek	TX0123561	Collin	5.26
NTMWD	Rowlett Creek	TX0047911	Collin	15.33
NTMWD	Wilson Creek	TX0088633	Collin	36.55
NTMWD	Mesquite	TX047431	Dallas	16.14
NTMWD	Stewart Creek West	TX0103501	Denton	5.46
Sherman	Post Oak	TX0024325	Grayson	7.45
TRA	Denton Creek	TX0104957	Denton	4.67
TRA	Red Oak	TX0104345	Ellis	2.20
TRA	Ten Mile Creek	TX0022811	Ellis	14.50
TRA	TRA Central	TX0022802	Dallas	131.95
UTRWD	Lakeview	TX0020354	Denton	3.62
Waxahachie	Waxahachie	TX0027537	Ellis	3.75
Weatherford	Weatherford	TX0047724	Parker	2.03

Dallas. The City has developed a *Recycled Water Implementation Plan* (7,8). The plan recommends two direct reuse projects and two water supply augmentation projects (indirect reuse) for near-term implementation. Currently, the City irrigates Cedar Crest

Golf Course with reclaimed water from the Central Wastewater Treatment Plant. One direct reuse project involves extending the pipeline from Cedar Crest Golf Course to the Dallas Zoo, an industrial customer, and Stevens Golf Course. The projected average supply from this project would be 2.5 mgd. As of July 2009, the projected capital cost is $15 million, operation and maintenance costs are estimated to be $230,000 per year, and energy costs are expected to be $85,000 per year. The Cedar Crest Pipeline Extension Project is currently being designed. Construction is anticipated to begin in 2011.

The second direct reuse project, the White Rock Pipeline, would involve a pipeline from the Central Wastewater Treatment Plant northward to serve customers in the White Rock Creek Basin. The projected average supply from this project would be 16.5 mgd. The projected capital cost is $55.2 million, operation and maintenance costs are estimated to be $1,380,000 per year, and energy costs are expected to be $825,200 per year. DWU is planning to move forward with development of customer agreements and preliminary engineering on this project in 2013.

Water supply augmentation projects are recommended for Lake Lewisville and Lake Ray Hubbard. The Lake Lewisville augmentation project would involve pumping an annual average of 60 mgd of reclaimed water from the Central Wastewater Treatment Plant to Lake Lewisville for storage, blending, and future use. The projected capital cost for the Lake Lewisville project is $185.7 million, and operation and maintenance costs are estimated to be $45 million per year.

The Lake Ray Hubbard augmentation project would involve pumping an annual average of 60 mgd of reclaimed water from the Southside Wastewater Treatment Plant to Lake Ray Hubbard for storage, blending, and future use. The projected capital cost for the Lake Ray Hubbard project is $201.3 million, and operation and maintenance costs are estimated to be $5.0 million per year.

Flower Mound. The Town of Flower Mound has identified a potential service area that includes the corporate Town limits and the Grapevine Municipal Golf Course complex adjacent to the Town's southern limits [9]. Potential reclaimed water uses include maintenance of impoundments or natural water bodies, toilet or urinal flush water, silviculture, soil compaction or dust control in construction areas, cooling tower makeup water, and irrigation. Initially, it is anticipated that reclaimed water would be delivered to users in Lakeside Business District, for irrigation of vegetated medians along FM 2499, and for irrigation of Gerault Park.

Fort Worth. The City of Fort Worth has provided reclaimed water from its Village Creek WWTP for irrigation at the Links at Waterchase Golf Course in Fort Worth since 1999. In 2007, the City developed a *Reclaimed Water Priority and Implementation Plan* (10) to evaluate an additional five direct reuse projects, which would be used for local irrigation, natural gas exploration, cooling water makeup and electric power generation. The first of these projects, the Village Creek Reclaimed Water Delivery System, is anticipated to be online by the end of 2010. The Village Creek Reclaimed Water Delivery System will serve the Cities of Arlington and Euless, Dallas-Fort Worth International Airport, and other potential retail customers within the City of Fort Worth with up to 4,423 acre-feet per year of reclaimed water from the Village Creek WWTP. The remaining direct reuse projects are still in the planning phase and are described below:

The western direct reuse project involves the construction of a satellite wastewater treatment plant and conveyance facilities to provide reclaimed water to the Mary's Creek drainage basin in western Fort Worth. The Mary's Creek Direct Reuse Project would be constructed to provide a supply for non-potable water needs for the Walsh Ranch development and other nearby areas.

The central direct reuse project involves the construction of conveyance facilities to provide reclaimed water from the Village Creek WWTP to the Central Business District, including the planned Trinity River Vision Central City Project.

The northern direct reuse project involves the construction of conveyance facilities to provide reclaimed water from the Trinity River Authority's Denton Creek Regional Wastewater System to serve developments in the Alliance Airport area.

The southern direct reuse project involves the construction of a satellite WWTP and conveyance facilities to provide reclaimed water in the southern portion of the City for irrigation, cooling water, and other non-potable uses near the intersection of I-20 and I-35W.

Lewisville. The City of Lewisville has identified a potential service area that includes the City and its Extraterritorial Jurisdiction (ETJ) and selected locations outside the ETJ (12). The City plans to continue to produce reclaimed water for existing users (Denton County

Fresh Water Supply District No. 1 and the City) and may provide reclaimed water to other users including but not limited to: the Lake Park Golf Complex, the Lake Park athletic fields, a tree farm near Jones Street and Kealy Avenue, the City's Fire Training Center, a Heavy Industry Zone roughly bounded by State Highway 121 to the south, the Elm Fork Trinity River to the east, Prairie Creek and Sewage Treatment Plant Road to the north, and the Atchison, Topeka & Santa Fe Railroad to the west, Coyote Ridge Golf Club, Indian Creek Golf Course, and Riverchase Golf Club.

North Texas Municipal Water District. NTMWD utilizes return flows diverted from the East Fork of the Trinity River (East Fork) to augment existing supplies at Lake Lavon. The East Fork Raw Water Supply Project includes a 43 mile pipeline to transport treated water from a 1,840 acre constructed wetland near Seagoville to Lake Lavon. In 2007, NTMWD was granted a water rights permit authorizing the diversion and use of up to 157,393 acre-feet per year for the project. The project is currently planned to provide approximately 102,000 acre-feet per year of additional supply to Lake Lavon.

The NTMWD is now permitted to divert from Lake Lavon up to 71,882 acre-feet per year of return flows from the Wilson Creek WWTP. This plant currently provides nearly 48,000 acre-feet per year of supply for indirect reuse in Lake Lavon. In addition to these indirect reuse projects, the District plans to expand its direct reuse program.

Weatherford. The City of Weatherford has defined its potential service area as the City and its ETJ. Potential uses include cooling tower makeup water, gas industry use, soil compaction and dust control in construction areas, irrigation of animal feed crops (other than pastures for milking animals), fire protection, golf course irrigation, and maintenance of water features, and other acceptable uses where human contact with reclaimed water is unlikely to occur [13].

Dallas/North Texas Municipal Water District Collaboration. Dallas Water Utilities and NTMWD have entered into an agreement which would allow NTMWD to exchange up to 157,393 acre-feet per year of return flows from District water supplies into Lake Ray Hubbard for Dallas return flows into the mainstem Trinity River. Under this agreement, Dallas will have the right to divert the NTMWD return flows from Lake Ray Hubbard and will pump an equal amount of flow from the mainstem Trinity River to the NTMWD East Fork Water Supply Project wetland for use by NTMWD. In addition, once water rights for

Elm Fork return flows (from NTMWD return flows to the Lake Lewisville watershed) have been secured by NTMWD, NTMWD will support Dallas efforts to secure bed and banks transport, storage and diversion rights for the Elm Fork return flows. In exchange, Dallas will pump a quantity equal to NTMWD's future Elm Fork return flows to the East Fork Water Supply Project wetland for use by NTMWD.

Consolidation of Reuse Plans into a Regional Reuse Plan

All of the projects discussed in the 210 authorizations and the reuse plans are included in the current *Region C Water Plan*. Additional reuse projects were identified where possible to meet water needs. The recommended regional reuse plan is outlined in Table 4B.2 in Section 4B of the Region C plan.

Recent Water Right Amendments Involving Reuse

The Texas Commission on Environmental Quality (TCEQ) has granted reuse-based amendments to water right certificates of adjudication held by the Tarrant Regional Water District, Trinity River Authority, City of Dallas, Upper Trinity Regional Water District, City of Irving, and the North Texas Municipal Water District. These recent amendments are discussed below and summarized in Table I.10.

Tarrant Regional Water District. On February 8, 2005, the District received amendments to its water rights in Richland-Chambers Reservoir (Certificate of Adjudication 08-5035C) and Cedar Creek Reservoir (Certificate of Adjudication 08-4976C). The amended certificates allow the District to divert from the Trinity River a portion of the historic and future return flows that originate from water stored in District reservoirs. The return flows will be diverted into off-channel, wetland impoundments to improve water quality and then delivered into Richland-Chambers Reservoir and/or Cedar Creek Reservoir for storage and future diversion. The maximum annual diversion from the Trinity River shall not exceed any one of the following:

- 90,799 acre-feet per year (Certificate of Adjudication 08-4976C),
- 105,019 acre-feet per year (Certificate of Adjudication 08-5035C),
- 195,818 acre-feet per year for both certificates, or

- 70 percent of District return flows, less carriage losses.

Table I.10
Water Right Amendments and Permit Applications Involving Reuse

Entity	Flow Description	Certification of Adjudication/ Permit Number	Status	Amendment Date	Additional Annual Diversion for Water Supply (ac-ft/year)
Tarrant Regional Water District	Multiple WWTPs to Wetland/Cedar Creek Reservoir	08-4976C	Amended	02/08/05	52,500
Tarrant Regional Water District	Multiple WWTPs to Wetland/Richland-Chambers Reservoir	08-5035C	Amended	02/08/05	63,000
Trinity River Authority	Mountain Creek WWTP to Joe Pool Lake	08-3404D	Amended	06/27/05	4,368
Trinity River Authority	Multiple WWTPs to Lake Livingston	08-4248	Amended	10/12/06	246,960
City of Dallas	Multiple WWTPs to Lewisville Lake	08-2456E	Amended	10/12/06	0
City of Dallas	Multiple WWTPs to Lake Ray Hubbard	08-2462G	Amended	10/12/06	150,000
Upper Trinity Regional Water District	Multiple WWTPs to Lewisville Lake	5778	Amended	03/03/06	9,664
City of Irving	Unspecified	03-4799C	Amended	01/06/06	31,600
North Texas Municipal Water District	Wilson Creek WWTP to Lake Lavon	08-2410E	Amended	09/08/05	35,941
North Texas Municipal Water District	Multiple WWTPs to Wetland/Lake Lavon	08-2410F	Amended	07/05/07	157,393

The maximum annual delivery from the Richland-Chambers wetland impoundment to Richland-Chambers Reservoir is 100,465 acre-feet per year. Similar to the operation of the Cedar Creek wetland project, the water from the Richland-Chambers wetland impoundment will augment existing storage in Richland-Chambers Reservoir for diversion under the reservoir's original permit of 210,000 acre-feet per year, with additional authorized diversion from Richland-Chambers Reservoir up to 63,000 acre-feet per year for municipal, mining, industrial, and agricultural purposes. The Richland-Chamber Reservoir reuse project began operation in 2009.

The maximum annual delivery from the Cedar Creek wetland impoundment to Cedar Creek Reservoir is 88,059 acre-feet per year. This water will augment existing storage in Cedar Creek Reservoir for diversion under the reservoir's original permit of 175,000 acre-feet per year, plus additional authorized diversion from Cedar Creek Reservoir up to 52,500 acre-feet per year for municipal, mining, industrial, and agricultural purposes. The Cedar Creek Reservoir reuse project is expected to be completed by 2018.

Trinity River Authority. On October 12, 2006, the TCEQ granted an amendment to the Authority's Certificate of Adjudication 08-4248. The amendment allows the Authority to impound, in its share of the storage in Lake Livingston, historical and future return flows from its Central, Red Oak Creek, and Ten Mile Creek wastewater treatment plants. According to the amendment, these treatment plants have a cumulative permitted discharge of 220.5 million gallons per day (MGD). The amendment allows the Authority to impound return flows in Lake Livingston and to divert and use the return flows as authorized in the amended certificate. Lake Livingston is located in Region H.

On June 27, 2005, the Authority received an amendment to its water right in Joe Pool Lake (Certificate of Adjudication 08-3404D). The amended certificate allows the Authority to impound in and use from Joe Pool Lake an amount not to exceed 4,368 acre-feet per year of return flows from the Authority's Mountain Creek Regional Wastewater Treatment Plant. The amendment also provides a bed and banks authorization to use an unnamed tributary of Newton Branch, tributary of Soap Creek, tributary of Mountain Creek, and Joe Pool Lake to convey the discharged water to Joe Pool Lake for storage and subsequent diversion.

City of Dallas. On October 12, 2006, the TCEQ granted an amendment to the City's Certificate of Adjudication 08-2456E, an amendment to its water right in Lake Lewisville, and Certificate of Adjudication 08-2462G, an amendment to its water right in Lake Ray Hubbard. The amendments allow the diversion of historical and future return flows contributed by the City of Lewisville and Town of Flower Mound Wastewater Treatment Plants from the Elm Fork Trinity River to the City's Elm Fork and Bachman Water Treatment Plants. The amendment also provides the right to discharge, store, divert, and use historical and future return flows from the City's Central and Southside Wastewater Treatment Plants. The City plans to convey by pipeline a portion of the return flows from the Central and Southside Wastewater Treatment Plants to Lake Lewisville and Lake Ray Hubbard. The five-year average discharges stated in the amendment from these plants are 157,030 acre-feet per year from the Central plant and 85,800 acre-feet per year from the Southside plant. The amendments require that the City leave at least 114,000 acre-feet per year of water discharged from the Central and Southside Wastewater Treatment Plants in the Trinity River to meet downstream flow requirements. The amendments also include a bed and banks authorization to convey the return flows from the pipeline discharge point to previously authorized diversion points. The amendments provide diversion authorization of up to an additional 150,000 acre-feet per year from Lake Ray Hubbard but do not request a new appropriation of water in Lake Lewisville.

Return flows covered by this request include the following:

- Dallas Trinity Basin origin water historically discharged into the Trinity River,
- Sabine River water (Lake Tawakoni) historically discharged into the Trinity River,
- Future increases in return flows originating from the Trinity River and Sabine River Basins, and
- Developed water to be transferred from the Sabine River (Lake Fork) and Neches River Basins.

Upper Trinity Regional Water District. On March 3, 2006, the TCEQ granted the District's amendment to Permit Number 5778. The amendment allows the District to divert from Lake Lewisville up to 9,664 acre-feet per year of return flows, originating from the District's Lake Chapman water, for municipal and industrial purposes. The proposed amendment authorizes the use of bed and banks to convey return flows from their points of discharge to the diversion point in Lake Lewisville.

City of Irving. On January 6, 2006, the TCEQ issued Certificate of Adjudication 03-4799C, an amendment to the City's water right in Lake Chapman. The amendment removes the requirement to return unconsumed water to the Trinity River Basin and adds an authorization to reuse its imported Sulphur River Basin water as "developed" water. The Certificate of Adjudication authorizes the City to reuse up to 31,600 acre-feet per year (less carriage losses). However, an agreement between the City and the Trinity River Authority limits this quantity to 28,000 acre-feet/year. The reuse authorization is subject to obtaining future authorizations after identifying specific points of discharge and diversion and satisfying bed and banks requirements.

North Texas Municipal Water District (Lake Lavon). The District has been granted Certificates of Adjudication 08-2410E and 08-2410F to reuse return flows from District water supplies. Each of these is discussed below.

On September 8, 2005, the TCEQ authorized Certificate of Adjudication 08-2410E, which amended the District's water right in Lake Lavon. The amendment allows the District to divert from Lake Lavon up to an additional 35,941 acre-feet per year (for a total of 71,882 acre-feet per year) of return flows from the District's Wilson Creek Wastewater Treatment Plant. This diversion is for municipal purposes and is limited to the amount actually discharged from the treatment plant, less conveyance losses. On July 5, 2007, the TCEQ authorized Certificate of Adjudication 08-2410F, which amended the District's water right in Lake Lavon. The amendment allows the diversion of up to 157,393 acre-feet per year of return flows originating from District water supplies from the East Fork Trinity River for municipal, industrial, agricultural, and recreational purposes. This amount includes all future District return flows from wastewater treatment plants currently discharging to the watershed of the East Fork of the Trinity River with the following exceptions:

- 64 MGD of discharges from the District's Wilson Creek Wastewater Treatment Plant, which the District has appropriated through CA 08-2410E
- 30 percent of all Trinity Basin-based return flows authorized pursuant to Certificate of Adjudication No. 08-2410, as amended, which the District will leave in the East Fork Trinity River to address downstream water rights and the needs of the environment.

The amendment also includes a bed and banks authorization to use streams within the Trinity River Basin to convey District return flows to the diversion point.

Existing Reuse Quantities

During early August 2009, a survey of Chapter 210 reuse providers (Table I.11) and operating indirect reuse providers (Table 1-12) in Region C was conducted. Two significant, indirect reuse projects, the TRWD Richland-Chambers Wetland and NTMWD

East Fork Raw Water Supply Project, have both recently began operation and are not included in Table I.12 for this reason. A summary of information obtained from these surveys is included in this section.

The 2006 *Region C Water Plan* (1) showed the available supply from direct reuse projects included in Table 1-11 to be 35,738 ac-ft/yr by the year 2010. Over the course of the period evaluated here (2005-2008), reuse quantities ranging from 10,000 to 14,000 ac-ft/yr were used from these projects. The 2006 *Region C Water Plan* (1) showed the available supply from indirect reuse projects included in Table 1-12 to be 83,640 ac-ft/yr of water by the year 2010. In 2008, approximately 52,284 ac-ft/yr of reuse supplies from these projects were used.

Table I.11
Direct Reuse Quantities by Provider

Sponsor	Project	Use	2010 Available Supply (2006 Plan) (ac-ft/yr)	2005 (ac-ft/yr)	2006 (ac-ft/yr)	2007 (ac-ft/yr)	2008 (ac-ft/yr)
NTMWD	Rowlett Creek	Golf Course Irrigation	1,540	383.65	422.59	140.06	221.95
NTMWD	Buffalo Creek	Golf Course Irrigation	672	187.69	244.99	145.77	159.34
NTMWD	Royse City	Golf Course Irrigation	112	112.26	129.00	0.00	0.00
NTMWD Subtotal			***2,324***	***683.60***	***796.59***	***285.83***	***381.28***
TRA	Las Colinas	Irrigation	8,000	1,684.41	2,192.30	227.16	1,756.72
TRA	Ten Mile Creek	Irrigation	N/A	41.93	46.06	13.42	35.87
TRA Subtotal			***8,000***	***1,726.34***	***2,238.36***	***240.58***	***1,792.58***
Garland	Forney	Steam Electric Power	8,979	6,522.64	8,015.82	7,997.97	7,910.11
Garland Subtotal			***8,979***	***6,522.64***	***8,015.82***	***7,997.97***	***7,910.11***
Frisco	Stewart Creek	Golf Course Irrigation	307	320.04	356.92	257.96	107.76
Frisco Subtotal			***307***	***320.04***	***356.92***	***257.96***	***107.76***
Fort Worth	Waterchase Golf	Golf Course Irrigation	897	438.12	594.36	304.78	449.44
Fort Worth Subtotal			***897***	***438.12***	***594.36***	***304.78***	***449.44***
Dallas	Cedar Crest	Golf Course Irrigation	561	250.61	232.28	166.04	
Dallas Subtotal			***561***	***250.61***	***232.28***	***166.04***	***0.00***
Ennis	Tractabel	Steam Electric Power	3,363	707.59	706.13	861.27	
Ennis Subtotal			***3,363***	***707.59***	***706.13***	***861.27***	***0.00***
Gainesville	Keneteso Park	Irrigation	9	0.73	0.94	3.87	4.05
Gainesville Subtotal			***9***	***0.73***	***0.94***	***3.87***	***4.05***
Azle	Cross Timbers	Golf Course Irrigation	811	242.96	285.20	32.49	56.10
Azle Subtotal			***811***	***242.96***	***285.20***	***32.49***	***56.10***
The Colony	Stonebriar Country Club	Golf Course Irrigation	380	114.96	326.28	180.23	
The Colony Subtotal			***380***	***114.96***	***326.28***	***180.23***	***0.00***
Lewisville	Castlehills Golf Course	Golf Course Irrigation	897	383.05	379.03	210.46	
Lewisville Subtotal			***897***	***383.05***	***379.03***	***210.46***	***0.00***
Denton	City of Garland	Steam Electric Power	3,363	388.15	644.24	172.78	108.39
Denton	Oakmont Country Club	Golf Course Irrigation	800	309.54	232.61	118.56	215.45
Denton	Various	Irrigation	6,165	64.49	106.98	82.08	69.40
Denton Subtotal			***10,328***	***762.18***	***983.83***	***373.41***	***393.24***
TOTAL			**35,738**	**11,590**	**14,274**	**10,624**	**10,931**

Table I.12
Indirect Reuse Quantities by Provider

Sponsor	Project	2010 Available Supply (2006 Plan) (ac-ft/yr)	2005 (ac-ft/yr)	2006 (ac-ft/yr)	2007 (ac-ft/yr)	2008 (ac-ft/yr)
NTMWD	Wilson Creek	71,882.00	4,208.37	43,933.45	50,104.20	42,831.31
NTMWD Subtotal		***71,882.00***	***4,208.37***	***43,933.45***	***50,104.20***	***42,831.31***
UTRWD	Lakeview Regional WRP	8,441.00	2,686.38	2,691.13	4,264.19	4,070.85
UTRWD	Riverbend Regional WRP		404.27	582.53	924.47	934.41
UTRWD	Peninsula Regional WRP		75.64	116.37	147.22	191.44
UTRWD	Celina WWTP		329.50	305.40	513.08	417.68
UTRWD		***8,441.00***	***3,495.78***	***3,695.44***	***5,848.96***	***5,614.37***
Grapevine	Peach St. WWTP	3,317.00	3,501.68	3,376.64	3,924.26	3,838.40
Grapevine Subtotal		***3,317.00***	***3,501.68***	***3,376.64***	***3,924.26***	***3,838.40***
TOTAL		**83,640.00**	**11,205.83**	**51,005.53**	**59,877.42**	**52,284.08**

Desalination

Two desalination facilities are currently operated by public water systems within Region C. The City of Sherman operates a 7.50 MGD (design hydraulic capacity) electrodialysis reversal membrane plant to treat brackish water from Lake Texoma. The City of Bardwell operates a reverse osmosis facility to treat 0.036 MGD (design hydraulic capacity) of brackish groundwater. In addition, the Brazos River Authority (BRA) operates the Lake Granbury Surface Water and Treatment System (SWATS). Although Lake Granbury is located in Region G, BRA provides water from SWATS to the Johnson County SUD, which serves customers within Region C. The amount of water provided by SWATS is accounted for as an import to Region C (Table I.14).

Existing Desalination Quantities

During October 2009, a survey of operating desalination facilities in Region C was conducted. The information obtained from the City of Sherman's survey is shown in Table I.13.

Table I.13
Desalination Quantities by Provider

Sponsor	2006 (MG/year)	2007 (MG/year)	2008 (MG/year)	2006 (ac-ft/yr)	2007 (ac-ft/yr)	2008 (ac-ft/yr)
City of Sherman	1,557.15	1,261.66	1,372.79	4,779	3,872	4,213

Imports

The supply available from imports is based upon the Water Availability Models (WAMs) from the TCEQ and the current contracts with the owners of the water sources. Table I.14 shows those imports. Below is a discussion of each of the imported water sources.

Table I.14
Currently Available Surface Water Supplies – Imports
(Acre-Feet per Year)

Source	Basin of Origin	2000	2010	2020	2030	2040	2050	2060	2060 from 2006 Plan
Chapman (NTMWD)[a]	Sulphur	47,132	47,132	47,132	47,132	47,132	47,132	47,132	45,843
Chapman (Irving)	Sulphur	44,484	44,484	44,484	44,484	44,484	44,484	44,484	43,268
Chapman (Upper Trinity MWD)	Sulphur	13,268	13,268	13,268	13,268	13,268	13,268	13,268	12,905
Tawakoni (Terrell)	Sabine	9,790	0	0	0	0	0	0	9,356
Tawakoni (Dallas)	Sabine	184,991	183,619	182,251	180,882	179,515	178,146	176,777	176,777
Fork (Dallas)[b]	Sabine	120,000	120,000	119,943	119,095	118,248	117,400	116,551	116,551
Upper Sabine Basin (NTMWD)[c]	Sabine	0	49,718	29,646	9,573	9,501	9,428	9,356	0
Palestine (Dallas)[d]	Neches	112,700	112,881	111,776	110,670	109,563	108,455	107,347	108,980
Livingston[e]	Trinity	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Lake Athens[f]	Neches	3,960	3,908	3,856	3,804	3,751	3,699	3,647	3,647
Possum Kingdom[g]	Brazos	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Lake Aquilla	Brazos	245	264	276	285	295	309	329	329
Lake Granbury	Brazos	185	231	231	231	231	231	231	231
Lake Palo Pinto	Brazos	850	1,270	1,257	1,248	1,234	1,230	1,230	1,230
TOTAL		**559,605**	**598,775**	**576,120**	**552,672**	**549,222**	**545,782**	**542,352**	**541,117**

a. The supplies from Lake Chapman for NTMWD include NTMWD's share of Lake Chapman and sales from the City of Cooper.
b. The import of water from Lake Fork to the Trinity Basin is limited to 120,000 acre-feet per year. The first phase of the infrastructure to transport this water to DWU is completed. The second phase is scheduled to be completed in the next five years.
c. NTMWD acquired Terrell's supply in Lake Tawakoni with additional water from the Upper Sabine Basin for 2010 and 2020.
d. There is no current infrastructure to transport the water from Lake Palestine to DWU.
e. Water supply contract from Lake Livingston is for 20,000 acre-feet per year in any one year with no more than 48,000 acre-feet per year over a three year period.
f. The amount of water from Lake Athens is the amount that is imported to Region C.
g. The supply from Possum Kingdom Lake is for Vulcan Materials (Parker County Mining).

Chapman. North Texas Municipal Water District, the City of Irving, and the Sulphur River Water District hold water rights in Lake Chapman totaling 146,520 acre-feet per year. Of this total, 127,320 acre-feet per year can be exported for use in Region C – 57,214 acre-feet per year for North Texas Municipal Water District, 54,000 acre-feet per year for Irving, and 16,106 acre-feet per year for the Upper Trinity Regional Water District (purchased from the Sulphur River Water District). According to the Operations Plan for Lake Chapman, prepared by R.J. Brandes Company in June 2003 [(14)], the year 2000 firm yield of

Lake Chapman is about 130,100 acre-feet per year, decreasing to 117,400 acre-feet per year by 2060. The modified Water Availability Model for the Sulphur Basin indicates that the year 2000 and year 2060 firm yield of Lake Chapman is 120,700 acre-feet per year, which is less than the permitted 146,520 acre-feet per year. Changes in the available supply since the 2006 *Region C Water Plan* [(1)] can be attributed to extensive changes made to the TCEQ Sulphur Basin WAM.

The values in Table I.14 show Lake Chapman's computed firm yield divided proportionally among the Region C water suppliers with a share of the water. The water supply for Upper Trinity Regional Water District could reduce by 25 percent in 2050 because the City of Commerce has the option to reclaim a portion of the water it has sold to UTRWD after 2040. However, based on water projections for the City of Commerce, it is expected that Commerce may not need to exercise the option, thereby letting the water remain available to UTRWD.

Tawakoni. Lake Tawakoni is located in the Sabine River Basin. The Sabine River Authority holds water rights for 238,100 acre-feet per year. The City of Dallas has a contract for 190,480 acre-feet per year. The North Texas Municipal Water District has a contract for 10,081 acre-feet per year that was transferred from the City of Terrell since the 2006 *Region C Water Plan* [(1)]. Using the Sabine River WAM, the firm yield of Lake Tawakoni is 231,520 in year 2000, reducing to 221,240 acre-feet per year by 2060. The supplies available to the cities of Dallas and NTMWD are based on the proportion of the contracted amount to the firm yield. Adjustments were made to ensure that supplies to each customer of the Sabine River Authority were reduced proportionally. NTMWD's share of the Lake Tawakoni supply is included in the Upper Sabine Basin Supply in Table I.14.

Lake Fork (Dallas). Lake Fork is located in the Sabine River Basin. The Sabine River Authority holds water rights for 188,660 acre-feet per year. The City of Dallas has a contract for 131,860 acre-feet per year. Of this amount, 120,000 acre-feet per year can be exported to the Trinity Basin in Region C. The remainder can only be used in the Sabine River Basin. The Region I water planning group reports the firm yield of Lake Fork as 174,250 acre-feet per year in year 2000, reducing due to sedimentation to 166,960 acre-feet per year. The supply to Dallas was reduced in proportion to the reduced yield. The total amount exported to Region C was limited to the 120,000 acre-feet per year specified in the trans-basin diversion permit.

Upper Sabine Basin Supply (NTMWD). In addition to the Lake Tawakoni supply transferred to NTMWD from Terrell, NTMWD has a temporary water right for additional supply from the Upper Sabine Basin. The additional supply is 40,000 acre-feet per year in 2010 and 20,000 acre-feet per year in 2020. The available supply to NTMWD from the Upper Sabine Basin that is shown in Table I.14 includes the temporary supply (2010 and 2020 only) and the firm yield of the Lake Tawakoni water right that was transferred from Terrell to NTMWD.

Palestine (Dallas). Lake Palestine is located on the Neches River in the Neches River Basin. The lake is owned and operated by the Upper Neches River Municipal Water Authority (UNRMWA) in conjunction with a downstream diversion point (Rocky Point). The UNRMWA holds water rights totaling 238,110 acre-feet per year from the Lake Palestine system. The firm yield of the Palestine system using the numbers provided by Region I is estimated at 222,200 acre-feet per year in year 2000, reducing to 214,600 acre-feet per year by 2060. The City of Dallas has a contract with the UNRMWA for 114,337 acre-feet per year. The supply to Dallas was reduced due to the reduced yield. Presently there is no infrastructure to transport this water from Lake Palestine to Dallas. This will be considered as a water management strategy.

Athens (Athens). Lake Athens is located in Henderson County in the Neches River Basin. The Athens Municipal Water Authority holds water rights in Lake Athens totaling 8,500 acre-feet per year. Of this amount 3,023 acre-feet per year is designated for industrial use for the Athens Fish Hatchery, which is located at the lake. The yield of Lake Athens was determined by Region I using the Neches Basin Water Availability Model and is currently 6,145 acre-feet per year. The amount that is exported to Region C for use by the City of Athens is 3,960 acre-feet per year, reducing to 3,647 acre-feet per year in 2060.

Possum Kingdom Lake (Vulcan Materials). Vulcan Materials has a contract to purchase 2,000 acre-feet per year of water originating in Possum Kingdom Lake from the

Brazos River Authority for mining use. Possum Kingdom Lake is in the Brazos River Basin in Region G. This supply is assumed to be available through the planning period.

Lake Aquilla. Lake Aquilla is located in the Brazos River Basin in Region G. The Aquilla Water Supply Corporation provides water to entities in Ellis and Navarro Counties in Region C. The total estimated supply provided to Region C from Lake Aquilla is 245 acre-feet per year in 2000, increasing to 329 acre-feet per year by 2060.

Lake Granbury. Lake Granbury is located in the Brazos River Basin in Region G. The Brazos River Authority owns and operates the lake as part of the Authority's water system. Currently, the Authority sells water from Lake Granbury to Johnson County Special Utility District (SUD). Johnson County SUD provides water to customers in both Region C and Region G. The amount of water imported to Region C is estimated at 231 acre-feet per year.

Lake Palo Pinto. Lake Palo Pinto is located in Palo Pinto County in the Brazos River Basin in Region G. A portion of Mineral Wells is in Parker County in Region C, and Mineral Wells also sells water to Millsap Water Supply Corporation (WSC), Parker County WSC, and the portions of North Rural and Santo WSCs in Parker County. All of Mineral Wells' water supply currently comes from Lake Palo Pinto. (Mineral Wells has a water right in Lake Mineral Wells in Parker County but has no plans to use that source for water supply.) The supply from Lake Palo Pinto to Region C consists of:

- All projected City of Mineral Wells demand in Parker County
- 25 acre-feet per year of demand for Parker County Manufacturing, provided through the City of Mineral Wells
- 479 acre-feet per year for Parker County Other.

APPENDIX I

LIST OF REFERENCES

(1) Freese and Nichols, Inc., Alan Plummer Associates, Inc., Chiang, Patel & Yerby, Inc., and Cooksey Communications, Inc.: *2006 Region C Water Plan*, prepared for the Region C Water Planning Group, Fort Worth, January 2006.

(2) Texas Commission on Environmental Quality: Water Rights Database, provided on January 22, 2009 by Marian Chervenka with TCEQ to be used in regional water planning.

(3) Texas Water Development Board, *Exhibit C General Guidelines for Regional Water Plan Development (2007-2011)*, Austin, [Online] Available URL: http://www.twdb.state.tx.us/wrpi/rwp/docu.htm, September 8, 2008.

(4) Texas Water Development Board: “GAM Run 08-14mag,” Managed available groundwater estimates for the Woodbine Aquifer in Groundwater Management Area 8, Austin, December 2008.

(5) Texas Water Development Board: “GAM Run 08-84mag,” Managed available groundwater estimates for the Trinity Aquifer in Groundwater Management Area 8, Austin, March 2009.

(6) Texas Commission on Environmental Quality: Chapter 210 Authorization Database, emailed July 17, 2009 by Sherry Smith.

(7) Alan Plummer Associates, Inc., and Chiang, Patel & Yerby, Inc.: *Recycled Water Implementation Plan, Volume I, Final Review Draft*, prepared for Dallas Water Utilities, May 2005.

(8) Alan Plummer Associates, Inc., and Chiang, Patel & Yerby, Inc.: *Recycled Water Implementation Plan, Volume II, Water Supply Augmentation with Recycled Water, Draft*, prepared for Dallas Water Utilities, August 2005.

(9) Alan Plummer Associates, Inc.: *Reclaimed Water Use Notification*, prepared for the Town of Flower Mound, April 2002.

(10) Alan Plummer Associates, Inc.: *Reclaimed Water Priority and Implementation Plan*, prepared for the City of Fort Worth, May 2007.

(11) Environmental Protection Agency: Water Discharge Permits Query, downloaded August 2009 from http://www.epa.gov/enviro/html/pcs/pcs_query_java.html.

(12) Alan Plummer Associates, Inc.: *Chapter 210 Reclaimed Water Use Notification*, prepared for the City of Lewisville, February 2004.

(13) Alan Plummer Associates, Inc.: *Reclaimed Water Use Notification*, prepared for the City of Weatherford, July 2001.

(14) R.J. Brandes Company: *Operations Plan for Lake Chapman,* June 2003.

APPENDIX J

CURRENT SUPPLIES BY WATER USER GROUP

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Ables Springs WSC	KAUFMAN	Trinity	SRA Sources	Mac Bee WSC	965	0	0	0	0	0
Ables Springs WSC	KAUFMAN	Trinity	NTMWD Sources	NTMWD	0	0	0	0	0	0
Addison	DALLAS	Trinity	DWU Sources	DWU	7,268	7,566	7,832	7,753	7,404	6,674
Aledo	PARKER	Trinity	Trinity Aquifer		501	501	501	501	501	501
Aledo	PARKER	Trinity	TRWD Sources	Fort Worth	0	0	0	0	0	0
Allen	COLLIN	Trinity	NTMWD Sources	NTMWD	19,809	20,103	19,555	17,589	15,905	14,783
Alvord	WISE	Trinity	Trinity Aquifer		316	316	316	316	316	316
Alvord	WISE	Trinity	TRWD Sources		0	0	0	0	0	0
Anna	COLLIN	Trinity	Trinity Aquifer		88	88	88	88	88	88
Anna	COLLIN	Trinity	Woodbine Aquifer		124	124	124	124	124	124
Anna	COLLIN	Trinity	NTMWD Sources	GTUA	1,408	1,668	1,668	1,668	1,668	1,668
Annetta	PARKER	Trinity	Trinity Aquifer		240	240	240	240	240	240
Annetta South	PARKER	Trinity	Trinity Aquifer		100	100	100	100	100	100
Argyle	DENTON	Trinity	UTRWD Sources	Argyle WSC	735	869	920	817	748	736
Argyle	DENTON	Trinity	Trinity Aquifer	Argyle WSC	474	474	474	474	474	474
Argyle WSC	DENTON	Trinity	UTRWD Sources	UTRWD	1,044	382	259	201	163	146
Argyle WSC	DENTON	Trinity	Trinity Aquifer		367	367	367	367	367	367
Arlington	TARRANT	Trinity	TRWD Sources	TRWD	65,417	68,777	61,675	55,707	48,551	42,411
Arlington	TARRANT	Trinity	Lake Arlington		9,850	9,700	9,550	9,400	9,250	9,100
Athens	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		685	685	685	685	685	685
Athens	HENDERSON	Trinity	Lake Athens	Athens MWA	3,363	754	999	1,214	1,426	1,618
Aubrey	DENTON	Trinity	UTRWD Sources	UTRWD	102	202	270	299	339	413
Aubrey	DENTON	Trinity	Trinity Aquifer		436	436	436	436	436	436
Aurora	WISE	Trinity	TRWD Sources	Walnut Creek SUD/ Rhome	0	0	0	0	0	0
Aurora	WISE	Trinity	Trinity Aquifer		252	252	252	252	252	252
Azle	TARRANT	Trinity	TRWD Sources	TRWD	1,505	1,531	1,565	1,597	1,615	1,620
Azle	PARKER	Trinity	TRWD Sources	TRWD	332	306	272	240	222	217
Balch Springs	DALLAS	Trinity	DWU Sources	Dallas Co. WCID #6	2,410	2,050	2,012	1,920	1,823	1,654
Bardwell	ELLIS	Trinity	Woodbine Aquifer		113	113	113	113	113	113
Bartonville	DENTON	Trinity	UTRWD Sources	Bartonville WSC	215	315	239	187	151	134
Bartonville	DENTON	Trinity	Trinity Aquifer	Bartonville WSC	62	62	62	62	62	62
Bartonville WSC	DENTON	Trinity	UTRWD Sources	UTRWD	193	85	68	61	55	53
Bartonville WSC	DENTON	Trinity	Trinity Aquifer		109	109	109	109	109	109
Bedford	TARRANT	Trinity	TRWD Sources	TRA	8,755	8,573	7,454	6,546	5,855	5,223
Bedford	TARRANT	Trinity	Trinity Aquifer		1,109	1,109	1,109	1,109	1,109	1,109
Bells	GRAYSON	Red	Trinity Aquifer		161	161	161	161	161	161
Bells	GRAYSON	Red	Woodbine Aquifer		43	43	43	43	43	43
Benbrook	TARRANT	Trinity	TRWD Sources	Benbrook WSA	4,176	5,045	5,045	5,045	5,045	5,045
Benbrook	TARRANT	Trinity	Trinity Aquifer	Benbrook WSA	1,183	1,183	1,183	1,183	1,183	1,183
Bethel-Ash WSC	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		480	480	480	480	480	480
Bethesda WSC	TARRANT	Trinity	TRWD Sources	Fort Worth	2,690	2,690	2,690	2,690	2,690	2,690
Bethesda WSC	TARRANT	Trinity	Trinity Aquifer		405	405	405	405	405	405
Blackland WSC	ROCKWALL	Sabine	NTMWD Sources	Rockwall	334	398	417	445	482	536
Blackland WSC	ROCKWALL	Trinity	NTMWD Sources	Rockwall	142	171	178	190	206	229
Blooming Grove	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	161	157	146	138	131	124
Blue Mound	TARRANT	Trinity	TRWD Sources	Tecon	0	0	0	0	0	0
Blue Mound	TARRANT	Trinity	Trinity Aquifer		327	327	327	327	327	327
Blue Ridge	COLLIN	Trinity	Woodbine Aquifer		328	328	328	328	328	328
Bolivar WSC	DENTON	Trinity	Trinity Aquifer		894	894	894	894	894	894
Bolivar WSC	COOKE	Trinity	Trinity Aquifer		205	205	205	205	205	205
Bolivar WSC	WISE	Trinity	Trinity Aquifer		0	0	0	0	0	0
Bolivar WSC	DENTON	Trinity	UTRWD Sources	UTRWD	0	0	0	0	0	0
Bonham	FANNIN	Red	NTMWD Sources	NTMWD	2,332	2,057	2,242	2,755	3,363	3,363
Boyd	WISE	Trinity	TRWD Sources	Walnut Creek SUD	62	118	147	167	183	159
Boyd	WISE	Trinity	Trinity Aquifer		150	150	150	150	150	150
Brandon-Irene WSC	ELLIS	Trinity	Lake Aquilla	Aquilla WSC	10	11	11	12	13	15
Brandon-Irene WSC	NAVARRO	Trinity	Lake Aquilla	Aquilla WSC	27	28	30	31	33	36
Bridgeport	WISE	Trinity	TRWD Sources	TRWD	1,337	1,700	1,700	1,700	1,700	1,700

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Bryson	JACK	Brazos	Lake Bryson		0	0	0	0	0	0
Bryson	JACK	Brazos	Lake Graham	Fort Belknap WSC	93	91	88	86	85	85
Buena Vista - Bethel SUD	ELLIS	Trinity	Trinity Aquifer		344	344	344	344	344	344
Buena Vista - Bethel SUD	ELLIS	Trinity	TRWD Sources	Waxahachie	560	560	560	560	560	560
Burleson	TARRANT	Trinity	TRWD Sources	Fort Worth	1,015	1,470	1,618	1,462	1,342	1,230
Caddo Basin SUD	COLLIN	Sabine	NTMWD Sources	NTMWD	411	421	455	492	522	563
Caddo Basin SUD	COLLIN	Trinity	NTMWD Sources	NTMWD	190	195	211	227	241	260
Carrollton	DENTON	Trinity	DWU Sources	DWU	13,870	11,546	11,463	10,964	10,264	9,115
Carrollton	DALLAS	Trinity	DWU Sources	DWU	9,935	8,066	7,741	7,261	6,731	5,979
Carrollton	DALLAS	Trinity	Trinity Aquifer		10	10	10	10	10	10
Cash WSC	ROCKWALL	Sabine	NTMWD Sources	NTMWD	27	30	32	103	111	123
Cedar Hill	DALLAS	Trinity	Joe Pool Lake	TRA	0	0	0	0	0	0
Cedar Hill	DALLAS	Trinity	DWU Sources	DWU	9,027	10,561	11,776	11,441	10,554	9,279
Cedar Hill	DALLAS	Trinity	Trinity Aquifer		275	275	275	275	275	275
Cedar Hill	DALLAS	Trinity	Woodbine Aquifer		0	0	0	0	0	0
Cedar Hill	ELLIS	Trinity	DWU Sources	DWU	11	11	10	10	10	10
Celina	COLLIN	Trinity	Trinity Aquifer		317	317	317	317	317	317
Celina	COLLIN	Trinity	UTRWD Sources	UTRWD	723	1,517	2,338	2,800	2,800	2,800
Celina	COLLIN	Trinity	Woodbine Aquifer		236	236	236	236	236	236
Celina	DENTON	Trinity		NTMWD	0	0	0	0	0	0
Chatfield WSC	NAVARRO	Trinity	Corsicana Sources	Corsicana	428	726	878	1,047	1,201	1,372
Chico	WISE	Trinity	TRWD Sources	West Wise Rural WSC	81	102	111	111	111	111
Chico	WISE	Trinity	Trinity Aquifer		124	124	124	124	124	124
Cockrell Hill	DALLAS	Trinity	DWU Sources	DWU	600	516	488	451	414	365
College Mound WSC	KAUFMAN	Trinity	NTMWD Sources	NTMWD	745	940	1,118	1,177	1,256	1,400
College Mound WSC	KAUFMAN	Trinity	NTMWD Sources	Terrell	0	0	0	0	0	0
Colleyville	TARRANT	Trinity	TRWD Sources	TRA	7,104	7,704	6,496	5,600	4,884	4,259
Colleyville	TARRANT	Trinity	Trinity Aquifer		0	0	0	0	0	0
Collin County-Irrigation	COLLIN	Trinity	Irrigation Local Supply		408	408	408	408	408	408
Collin County-Irrigation	COLLIN	Trinity	Direct reuse	The Colony	380	380	380	380	380	380
Collin County-Irrigation	COLLIN	Trinity	Direct reuse	NTMWD	1,847	1,847	1,847	1,847	1,847	1,847
Collin County-Irrigation	COLLIN	Trinity	Other Aquifer		21	21	21	21	21	21
Collin County-Irrigation	COLLIN	Trinity	Trinity Aquifer		545	545	545	545	545	545
Collin County-Irrigation	COLLIN	Trinity	DWU Sources	direct contract w/ Dallas	2,713	2,216	2,116	1,986	1,833	1,611
Collin County-Livestock	COLLIN	Sabine	Livestock Local Supply		31	31	31	31	31	31
Collin County-Livestock	COLLIN	Trinity	Livestock Local Supply		971	971	971	971	971	971
Collin County-Livestock	COLLIN	Sabine	Other Aquifer		118	118	118	118	118	118
Collin County-Livestock	COLLIN	Trinity	Other Aquifer		0	0	0	0	0	0
Collin County-Manufacturing	COLLIN	Trinity	NTMWD Sources	NTMWD	3,280	3,101	3,059	3,076	3,047	3,090
Collin County-Manufacturing	COLLIN	Trinity	Woodbine Aquifer		327	327	327	327	327	327
Collin County-Mining	COLLIN	Trinity	Other Local Supply		195	195	195	195	195	195
Collin County-Mining	COLLIN	Trinity	NTMWD Sources	NTMWD	146	119	103	93	84	78
Collin County-Other	COLLIN	Sabine	NTMWD Sources	NTMWD	12	11	10	9	8	7
Collin County-Other	COLLIN	Trinity	NTMWD Sources	NTMWD	391	291	229	185	151	128
Collin County-Other	COLLIN	Trinity	Trinity Aquifer		655	655	655	655	655	655
Collin County-Other	COLLIN	Trinity	Woodbine Aquifer		505	505	505	505	505	505
Collin County-Steam Electric Power	COLLIN	Trinity	NTMWD Sources	NTMWD	771	582	707	762	919	1,068
Collin County-Steam Electric Power	COLLIN	Trinity	Trinity Aquifer	TXU plant?	0	0	0	0	0	0
Collinsville	GRAYSON	Trinity	Trinity Aquifer		356	356	356	356	356	356
Combine	KAUFMAN	Trinity	DWU Sources	Combine WSC (DWU)	168	173	193	212	231	244
Combine	DALLAS	Trinity	DWU Sources	Combine WSC (DWU)	92	95	98	100	103	103
Combine WSC	KAUFMAN	Trinity	DWU Sources	DWU	281	351	434	509	590	649
Combine WSC	DALLAS	Trinity	DWU Sources	DWU	144	166	179	188	198	204
Community Water Company	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	106	157	181	215	255	303
Community Water Company	ELLIS	Trinity	Lake Bardwell	Ennis (TRA)	117	132	118	102	87	74
Community WSC	TARRANT	Trinity	TRWD Sources	TRWD	419	387	324	274	242	216
Community WSC	WISE	Trinity	TRWD Sources	TRWD	18	16	13	11	9	8
Cooke County-Irrigation	COOKE	Red	Irrigation Local Supply		23	23	23	23	23	23

Table J.1
Current Supplies by Water User Group

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Cooke County-Irrigation	COOKE	Red	Trinity Aquifer		112	112	112	112	112	112
Cooke County-Irrigation	COOKE	Trinity	Trinity Aquifer		60	60	60	60	60	60
Cooke County-Irrigation	COOKE	Red	Other Aquifer		100	100	100	100	100	100
Cooke County-Irrigation	COOKE	Trinity	Direct reuse	Gainesville	9	9	9	9	9	9
Cooke County-Livestock	COOKE	Red	Livestock Local Supply		380	380	380	380	380	380
Cooke County-Livestock	COOKE	Trinity	Livestock Local Supply		807	807	807	807	807	807
Cooke County-Livestock	COOKE	Red	Trinity Aquifer		228	228	228	228	228	228
Cooke County-Livestock	COOKE	Trinity	Trinity Aquifer		483	483	483	483	483	483
Cooke County-Manufacturing	COOKE	Trinity	Trinity Aquifer		50	50	50	50	50	50
Cooke County-Manufacturing	COOKE	Trinity	Gainesville Sources	Gainesville	215	194	158	152	137	130
Cooke County-Mining	COOKE	Red	Other Local Supply		77	77	77	77	77	77
Cooke County-Mining	COOKE	Trinity	Other Local Supply		160	160	160	160	160	160
Cooke County-Mining	COOKE	Red	Trinity Aquifer		42	42	42	42	42	42
Cooke County-Mining	COOKE	Trinity	Trinity Aquifer		7	7	7	7	7	7
Cooke County-Other	COOKE	Red	Trinity Aquifer		196	196	196	196	196	196
Cooke County-Other	COOKE	Trinity	Trinity Aquifer		692	692	692	692	692	692
Cooke County-Other	COOKE	Red	Other Aquifer		137	137	137	137	137	137
Cooke County-Other	COOKE	Trinity	Woodbine Aquifer		154	154	154	154	154	154
Coppell	DENTON	Trinity	DWU Sources	DWU	109	123	144	157	162	155
Coppell	DALLAS	Trinity	DWU Sources	DWU	10,506	8,514	8,067	7,542	6,931	6,094
Copper Canyon	DENTON	Trinity	UTRWD Sources	Bartonville WSC	244	116	100	94	89	90
Copper Canyon	DENTON	Trinity	Trinity Aquifer	Bartonville WSC	107	107	107	107	107	107
Corinth	DENTON	Trinity	UTRWD Sources	UTRWD	4,204	1,886	1,379	1,147	987	909
Corinth	DENTON	Trinity	Trinity Aquifer		280	280	280	280	280	280
Corsicana	NAVARRO	Trinity	Lake Halbert/Richland Chambers	Corsicana (TRWD)	2,242	2,242	2,242	2,242	2,242	2,242
Corsicana	NAVARRO	Trinity	Navarro Mills Reservoir	TRA	3,958	4,139	3,922	3,897	3,929	3,989
Crandall	KAUFMAN	Trinity	NTMWD Sources	Kaufman Four One	715	545	474	426	385	358
Crandall	KAUFMAN	Trinity	DWU Sources	Seagoville	0	0	0	0	0	0
Cresson	PARKER	Trinity	Trinity Aquifer	Bluebonnet Hills WC	166	166	166	166	166	166
Cross Roads	DENTON	Trinity	UTRWD Sources	Mustang WSC	276	323	242	203	170	154
Cross Roads	DENTON	Trinity	Trinity Aquifer	Mustang WSC	256	256	230	205	179	154
Crowley	TARRANT	Trinity	TRWD Sources	Fort Worth	1,218	1,421	1,598	1,945	2,096	2,006
Crowley	TARRANT	Trinity	Trinity Aquifer		309	309	309	309	309	309
Culleoka WSC	COLLIN	Trinity	NTMWD Sources	Princeton	890	1,099	1,149	1,196	1,255	1,338
Dallas	COLLIN	Trinity	DWU Sources	DWU	14,792	13,004	13,111	12,892	12,083	10,928
Dallas	DALLAS	Trinity	DWU Sources	DWU	323,011	281,146	280,268	279,341	284,892	294,451
Dallas	DENTON	Trinity	DWU Sources	DWU	6,887	5,823	5,718	5,524	5,117	9,905
Dallas	KAUFMAN	Trinity	DWU Sources	DWU	0	0	0	0	0	0
Dallas	ROCKWALL	Trinity	DWU Sources	DWU	5	4	4	4	4	3
Dallas County WCID #6	DALLAS	Trinity	DWU Sources	DWU	0	0	0	0	0	0
Dallas County-Irrigation	DALLAS	Trinity	Irrigation Local Supply		791	791	791	791	791	791
Dallas County-Irrigation	DALLAS	Trinity	Other Aquifer		80	80	80	80	80	80
Dallas County-Irrigation	DALLAS	Trinity	Joe Pool Lake	Grand Prairie	300	300	300	300	300	300
Dallas County-Irrigation	DALLAS	Trinity	Indirect Reuse	TRA	8,000	8,000	8,000	8,000	8,000	8,000
Dallas County-Irrigation	DALLAS	Trinity	Direct reuse	DWU	561	561	561	561	561	561
Dallas County-Irrigation	DALLAS	Trinity	DWU Sources	DWU	8,063	6,585	6,290	5,904	5,447	4,790
Dallas County-Livestock	DALLAS	Trinity	Livestock Local Supply		712	712	712	712	712	712
Dallas County-Livestock	DALLAS	Trinity	Woodbine Aquifer		703	703	703	703	703	703
Dallas County-Manufacturing	DALLAS	Trinity	NTMWD Sources	NTMWD	6,482	5,844	5,527	5,336	5,097	4,765
Dallas County-Manufacturing	DALLAS	Trinity	DWU sources	Dallas/Cedar Hill	22,901	20,719	21,546	21,734	21,180	18,736
Dallas County-Manufacturing	DALLAS	Trinity	Lake Chapman	Irving	2,047	2,267	2,469	2,653	2,802	2,819
Dallas County-Manufacturing	DALLAS	Trinity		NTMWD						
Dallas County-Manufacturing	DALLAS	Trinity	Trinity Aquifer		890	890	890	890	890	890
Dallas County-Manufacturing	DALLAS	Trinity	Woodbine Aquifer		1,228	1,228	1,228	1,228	1,228	1,228
Dallas County-Manufacturing	DALLAS	Trinity	Direct reuse	Alcatel Network Systems	20	20	20	20	20	20
Dallas County-Mining	DALLAS	Trinity	Other Local Supply		1,525	1,525	1,525	1,525	1,525	1,525
Dallas County-Mining	DALLAS	Trinity	DWU Sources	Dallas	274	228	217	204	188	166
Dallas County-Mining	DALLAS	Trinity	Trinity Aquifer		382	382	382	382	382	382

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Dallas County-Mining	DALLAS	Trinity	Other Aquifer		513	513	513	513	513	513
Dallas County-Mining	DALLAS	Trinity	Woodbine Aquifer		323	323	323	323	323	323
Dallas County-Other	DALLAS	Trinity	DWU Sources	Dallas	87	55	39	27	19	13
Dallas County-Other	DALLAS	Trinity	Other Aquifer		0	0	0	0	0	0
Dallas County-Other	DALLAS	Trinity	Trinity Aquifer		150	150	150	150	150	150
Dallas County-Other	DALLAS	Trinity	Woodbine Aquifer		59	59	59	59	59	59
Dallas County-Steam Electric Power	DALLAS	Trinity	DWU sources	Dallas	3,096	3,222	3,587	3,367	3,106	2,731
Dallas County-Steam Electric Power	DALLAS	Trinity	NTMWD Sources	NTMWD through Garland)	67	70	168	152	138	128
Dallas County-Steam Electric Power	DALLAS	Trinity	Mountain Creek Lake		6,400	6,400	6,400	6,400	6,400	6,400
Dallas County-Steam Electric Power	DALLAS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Dallas County-Steam Electric Power	DALLAS	Trinity	Run-of-River Wtr Rt #2388	TXU Parkdale Plant	368	368	368	368	368	368
Dallas County-Steam Electric Power	DALLAS	Trinity								
Dalworthington Gardens	TARRANT	Trinity	TRWD Sources	Fort Worth	500	505	453	402	359	318
Dalworthington Gardens	TARRANT	Trinity	Trinity Aquifer		266	266	266	266	266	266
Danville WSC	COLLIN	Trinity	NTMWD Sources	McKinney	834	938	1,002	1,075	1,143	1,231
Dawson	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	177	185	183	185	191	197
Decatur	WISE	Trinity	TRWD Sources	Wise Co WSD	1,614	1,754	1,754	1,754	1,754	1,754
Denison	GRAYSON	Red	Lake Randell		840	840	840	840	840	840
Denison	GRAYSON	Red	Lake Texoma	COE storage	4,980	4,980	4,980	4,980	4,980	4,980
Denison	GRAYSON	Red	Trinity Aquifer		157	157	157	157	157	157
Denison	GRAYSON	Red	Woodbine Aquifer		155	155	155	155	155	155
Denton	DENTON	Trinity	DWU Sources	DWU	0	0	5,058	12,284	19,756	22,403
Denton	DENTON	Trinity	Indirect reuse		1,682	8,861	11,557	12,907	12,726	12,545
Denton	DENTON	Trinity	Lake Lewisville		7,779	7,663	7,579	7,491	7,400	7,319
Denton	DENTON	Trinity	Lake Ray Roberts		18,645	18,352	18,134	17,907	17,673	17,463
Denton County FWSD #1A	DENTON	Trinity	UTRWD Sources	UTRWD	871	379	347	342	333	347
Denton County FWSD #1A	DENTON	Trinity	DWU Sources	Lewisville	91	392	505	601	673	702
Denton County-Irrigation	DENTON	Trinity	Direct reuse	UTRWD	897	897	897	897	897	897
Denton County-Irrigation	DENTON	Trinity	Woodbine Aquifer		1,337	1,337	1,337	1,337	1,337	1,337
Denton County-Irrigation	DENTON	Trinity	Direct reuse	Denton	401	401	401	401	401	401
Denton County-Irrigation	DENTON	Trinity	Direct reuse	Trophy Club MUD #1	800	800	800	800	800	800
Denton County-Irrigation	DENTON	Trinity	DWU Sources	Dallas	2,207	1,802	1,722	1,616	1,491	1,311
Denton County-Livestock	DENTON	Trinity	Livestock Local Supply		935	935	935	935	935	935
Denton County-Livestock	DENTON	Trinity	Trinity Aquifer		246	246	246	246	246	246
Denton County-Livestock	DENTON	Trinity	Woodbine Aquifer		531	531	531	531	531	531
Denton County-Manufacturing	DENTON	Trinity	DWU sources	Dallas	393	373	404	426	430	411
Denton County-Manufacturing	DENTON	Trinity	UTRWD Sources	UTRWD	175	108	70	52	45	44
Denton County-Manufacturing	DENTON	Trinity	Lake Ray Roberts	Denton	335	368	326	293	267	217
Denton County-Manufacturing	DENTON	Trinity	Lake Lewisville	Denton	140	153	136	123	112	91
Denton County-Manufacturing	DENTON	Trinity	Trinity Aquifer		59	59	59	59	59	59
Denton County-Manufacturing	DENTON	Trinity	NTMWD Sources	NTMWD	53	50	49	50	50	50
Denton County-Mining	DENTON	Trinity	Other Local Supply		2,019	2,019	2,019	2,019	2,019	2,019
Denton County-Mining	DENTON	Trinity	Trinity Aquifer		1,571	1,571	1,571	1,571	1,571	1,571
Denton County-Mining	DENTON	Trinity	UTRWD Sources	UTRWD	537	94	64	50	40	35
Denton County-Other	DENTON	Trinity	UTRWD Sources	UTRWD	5,963	3,094	2,545	2,308	2,122	2,106
Denton County-Other	DENTON	Trinity	Other Aquifer		5	5	5	5	5	5
Denton County-Other	DENTON	Trinity	Trinity Aquifer		2,550	2,550	2,550	2,550	2,550	2,550
Denton County-Other	DENTON	Trinity	TRWD Sources	Fort Worth	439	532	517	501	488	468
Denton County-Other	DENTON	Trinity	Woodbine Aquifer		825	825	825	825	825	825
Denton County-Steam Electric Power	DENTON	Trinity	Direct Reuse	Denton	1,233	2,242	2,690	3,251	3,924	4,708
DeSoto	DALLAS	Trinity	DWU Sources	DWU	9,522	9,294	10,158	10,644	11,022	9,981
DeSoto	DALLAS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Double Oak	DENTON	Trinity	UTRWD Sources	Bartonville WSC	532	192	132	105	87	78
Double Oak	DENTON	Trinity	Trinity Aquifer	Bartonville WSC	171	171	171	171	171	171
Duncanville	DALLAS	Trinity	Joe Pool Lake	TRA	0	0	0	0	0	0
Duncanville	DALLAS	Trinity	DWU Sources	DWU	6,993	5,680	5,396	5,009	4,570	4,018
East Cedar Creek FWSD	HENDERSON	Trinity	TRWD Sources	TRWD	1,637	1,713	1,728	1,608	1,525	1,431
East Fork SUD	COLLIN	Trinity	NTMWD Sources	NTMWD	995	952	920	916	911	934

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
East Fork SUD	DALLAS	Trinity	NTMWD Sources	NTMWD	206	159	132	116	103	97
East Fork SUD	ROCKWALL	Trinity	NTMWD Sources	NTMWD	14	11	9	8	7	6
Ector	FANNIN	Red	Woodbine Aquifer		113	113	113	113	113	113
Edgecliff	TARRANT	Trinity	TRWD Sources	Fort Worth	456	414	346	293	253	221
Ellis County-Irrigation	ELLIS	Trinity	Irrigation Local Supply		3	3	3	3	3	3
Ellis County-Irrigation	ELLIS	Trinity	Trinity Aquifer		129	129	129	129	129	129
Ellis County-Irrigation	ELLIS	Trinity	Reuse		125	125	125	125	125	125
Ellis County-Livestock	ELLIS	Trinity	Livestock Local Supply		1,688	1,688	1,688	1,688	1,688	1,688
Ellis County-Livestock	ELLIS	Trinity	Woodbine Aquifer		154	154	154	154	154	154
Ellis County-Manufacturing	ELLIS	Trinity	TRWD Sources	Midlothian	134	403	538	577	583	526
Ellis County-Manufacturing	ELLIS	Trinity	Midlothian sources	Midlothian	1,161	537	494	458	416	354
Ellis County-Manufacturing	ELLIS	Trinity	TRWD Sources	Ennis (TRA)	0	59	100	116	85	81
Ellis County-Manufacturing	ELLIS	Trinity	Lake Bardwell	Sales from Ennis	351	284	225	176	135	95
Ellis County-Manufacturing	ELLIS	Trinity	TRWD Sources	Waxahachie	175	97	189	343	401	377
Ellis County-Manufacturing	ELLIS	Trinity	Waxahachie Sources	Waxahachie	961	794	700	520	403	315
Ellis County-Manufacturing	ELLIS	Trinity	Trinity Aquifer		1,035	1,035	1,035	1,035	1,035	1,035
Ellis County-Manufacturing	ELLIS	Trinity	Woodbine Aquifer		419	419	419	419	419	419
Ellis County-Mining	ELLIS	Trinity	Woodbine Aquifer		231	231	231	231	231	231
Ellis County-Other	ELLIS	Trinity	Other Aquifer		113	113	113	113	113	113
Ellis County-Other	ELLIS	Trinity	Trinity Aquifer		287	287	287	287	287	287
Ellis County-Other	ELLIS	Trinity	Woodbine Aquifer		1,400	1,400	1,400	1,400	1,400	1,400
Ellis County-Other	ELLIS	Trinity	Lake Bardwell	Sales from Ennis	57	43	33	25	18	14
Ellis County-Other	ELLIS	Trinity	Lake Waxahachie	Waxahachie	198	163	113	37	0	0
Ellis County-Other	ELLIS	Trinity	TRWD Sources	Waxahachie	42	23	42	73	82	81
Ellis County-Other	ELLIS	Trinity	TRWD Sources	Rockett SUD	50	49	44	39	35	30
Ellis County-Steam Electric Power	ELLIS	Trinity	Direct reuse	Ennis	800	800	800	800	800	800
Ellis County-Steam Electric Power	ELLIS	Trinity	Lake Bardwell	Ennis	601	601	601	601	601	601
Ellis County-Steam Electric Power	ELLIS	Trinity	TRWD Sources	Midlothian	22	62	78	81	80	75
Ellis County-Steam Electric Power	ELLIS	Trinity	Midlothian sources	Midlothian	188	82	72	64	57	51
Ennis	ELLIS	Trinity	Lake Bardwell	TRA	3,535	3,371	3,226	3,073	2,911	2,746
Ennis	ELLIS	Trinity	TRWD Sources	on line by October 2005	0	699	1,435	2,025	1,844	2,346
Ennis	ELLIS	Trinity	TRWD Sources	Rockett SUD	13	12	11	10	8	7
Euless	TARRANT	Trinity	TRWD Sources	TRA	8,050	8,608	7,624	6,698	5,905	5,186
Euless	TARRANT	Trinity	Trinity Aquifer		1,016	1,016	1,016	1,016	1,016	1,016
Eustace	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		152	152	152	152	152	152
Everman	TARRANT	Trinity	TRWD Sources	Fort Worth	230	244	190	150	127	111
Everman	TARRANT	Trinity	Trinity Aquifer		532	532	532	532	532	532
Fairfield	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		1,292	1,292	1,292	1,292	1,292	1,292
Fairfield	FREESTONE	Trinity	TRWD Sources	TRWD	0	0	0	0	0	0
Fairview	COLLIN	Trinity	NTMWD Sources	NTMWD	3,392	3,249	3,543	4,187	3,787	3,519
Fannin County-Irrigation	FANNIN	Red	Irrigation Local Supply - Red River		14,758	14,758	14,758	14,758	14,758	14,758
Fannin County-Irrigation	FANNIN	Trinity	Irrigation Local Supply - Trinity River		0	0	0	0	0	0
Fannin County-Irrigation	FANNIN	Sulphur	Irrigation Local Supply - Sulphur River		0	0	0	0	0	0
Fannin County-Irrigation	FANNIN	Red	Other Aquifer		2,620	2,620	2,620	2,620	2,620	2,620
Fannin County-Livestock	FANNIN	Red	Livestock Local Supply		1,139	1,139	1,139	1,139	1,139	1,139
Fannin County-Livestock	FANNIN	Sulphur	Livestock Local Supply		364	364	364	364	364	364
Fannin County-Livestock	FANNIN	Trinity	Livestock Local Supply		80	80	80	80	80	80
Fannin County-Livestock	FANNIN	Red	Trinity Aquifer		0	0	0	0	0	0
Fannin County-Livestock	FANNIN	Sulphur	Trinity Aquifer		72	72	72	72	72	72
Fannin County-Livestock	FANNIN	Trinity	Trinity Aquifer		0	0	0	0	0	0
Fannin County-Livestock	FANNIN	Red	Woodbine Aquifer		217	217	217	217	217	217
Fannin County-Livestock	FANNIN	Sulphur	Woodbine Aquifer		69	69	69	69	69	69
Fannin County-Livestock	FANNIN	Trinity	Woodbine Aquifer		15	15	15	15	15	15
Fannin County-Manufacturing	FANNIN	Red	Lake Bonham		73	82	90	98	105	114
Fannin County-Manufacturing	FANNIN	Red	NTMWD Sources	Bonham	73	67	64	62	60	61
Fannin County-Manufacturing	FANNIN	Red	Woodbine Aquifer		0	0	0	0	0	0
Fannin County-Mining	FANNIN	Red	Run-of-the-river		72	72	72	72	72	72
Fannin County-Other	FANNIN	Red	Lake Bonham		75	73	70	66	63	60

Table J.1
Current Supplies by Water User Group

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Fannin County-Other	FANNIN	Red	NTMWD Sources	Bonham	160	255	320	371	307	267
Fannin County-Other	FANNIN	Sulphur	NTMWD Sources	Bonham	26	41	52	60	49	43
Fannin County-Other	FANNIN	Trinity	NTMWD Sources	Bonham	25	40	50	58	48	42
Fannin County-Other	FANNIN	Red	Trinity Aquifer		0	0	0	0	0	0
Fannin County-Other	FANNIN	Sulphur	Trinity Aquifer		231	231	231	231	231	231
Fannin County-Other	FANNIN	Trinity	Trinity Aquifer		77	77	77	77	77	77
Fannin County-Other	FANNIN	Red	Woodbine Aquifer		731	731	731	731	731	731
Fannin County-Other	FANNIN	Trinity	Woodbine Aquifer		48	48	48	48	48	48
Fannin County-Other	FANNIN	Sulphur	Woodbine Aquifer		52	52	52	52	52	52
Fannin County-Other	FANNIN	Red	Run-of-river - Red River		20	20	20	20	20	20
Fannin County-Other	FANNIN	Sulphur	Run-of-river - Sulphur River		49	49	49	49	49	49
Fannin County-Steam Electric Power	FANNIN	Red	Lake Texoma		16,400	16,400	16,400	16,400	16,400	16,400
Fannin County-Steam Electric Power	FANNIN	Red	Woodbine Aquifer		80	80	80	80	80	80
Farmers Branch	DALLAS	Trinity	DWU Sources	DWU	10,326	9,094	9,241	9,160	8,875	8,164
Farmersville	COLLIN	Trinity	NTMWD Sources	NTMWD	621	957	1,188	1,601	2,123	2,691
Fate	ROCKWALL	Trinity	NTMWD Sources	NTMWD	2,070	3,230	3,494	3,710	3,731	3,707
Ferris	ELLIS	Trinity	TRWD Sources	Rockett SUD	167	202	209	221	238	244
Ferris	ELLIS	Trinity	Woodbine Aquifer		227	227	227	227	227	227
Ferris	ELLIS	Trinity	Midlothian sources	Rockett SUD (Midlothian)	7	18	59	107	165	229
Files Valley WSC	ELLIS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Files Valley WSC	ELLIS	Trinity	Lake Aquilla	Aquilla WSC	208	227	247	265	286	309
Flo Community WSC	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		25	25	25	25	25	25
Flower Mound	DENTON	Trinity	DWU Sources	DWU	7,965	7,837	8,837	8,296	7,654	6,730
Flower Mound	DENTON	Trinity	UTRWD Sources	UTRWD	8,454	4,565	4,798	3,727	2,992	2,626
Forest Hill	TARRANT	Trinity	TRWD Sources	Fort Worth	1,478	1,454	1,303	1,199	1,130	1,035
Forney	KAUFMAN	Trinity	NTMWD Sources	NTMWD	2,069	3,282	3,515	3,660	3,688	3,762
Forney Lake WSC	KAUFMAN	Trinity	NTMWD Sources	NTMWD	762	689	741	823	925	1,075
Forney Lake WSC	ROCKWALL	Trinity	NTMWD Sources	NTMWD	597	689	741	823	925	1,075
Fort Worth	DENTON	Trinity	TRWD Sources	TRWD	1,335	7,398	9,409	11,820	14,646	16,488
Fort Worth	PARKER	Trinity	TRWD Sources	TRWD	3,206	12,824	16,727	16,730	16,188	15,169
Fort Worth	TARRANT	Trinity	TRWD Sources	TRWD	163,985	171,233	170,249	180,740	193,211	208,242
Fort Worth	WISE	Trinity	TRWD Sources	TRWD	535	2,466	2,927	3,274	3,700	3,957
Freestone County-Irrigation	FREESTONE	Brazos	Carrizo-Wilcox Aquifer		2	2	2	2	2	2
Freestone County-Irrigation	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		36	36	36	36	36	36
Freestone County-Irrigation	FREESTONE	Trinity	Irrigation Local Supply		87	87	87	87	87	87
Freestone County-Livestock	FREESTONE	Brazos	Carrizo-Wilcox Aquifer		50	50	50	50	50	50
Freestone County-Livestock	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		619	619	619	619	619	619
Freestone County-Livestock	FREESTONE	Brazos	Livestock Local Supply		83	83	83	83	83	83
Freestone County-Livestock	FREESTONE	Trinity	Livestock Local Supply		960	960	960	960	960	960
Freestone County-Livestock	FREESTONE	Trinity	Other Aquifer		50	50	50	50	50	50
Freestone County-Livestock	FREESTONE	Trinity	Queen City Aquifer		40	40	40	40	40	40
Freestone County-Mining	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		40	40	40	40	40	40
Freestone County-Mining	FREESTONE	Brazos	Carrizo-Wilcox Aquifer		40	40	40	40	40	40
Freestone County-Mining	FREESTONE	Trinity	Other Local Supply		120	120	120	120	120	120
Freestone County-Other	FREESTONE	Brazos	Carrizo-Wilcox Aquifer		195	197	196	192	191	191
Freestone County-Other	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		1,185	1,183	1,184	1,188	1,189	1,189
Freestone County-Other	FREESTONE	Trinity	TRWD Sources		271	316	303	270	236	206
Freestone County-Other	FREESTONE	Trinity	Run-of-River local supply	Streetman	41	41	41	41	41	41
Freestone County-Steam Electric Power	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		745	745	745	745	745	745
Freestone County-Steam Electric Power	FREESTONE	Trinity	Lake Fairfield		870	870	870	870	870	870
Freestone County-Steam Electric Power	FREESTONE	Trinity	TRWD Sources	TRA	6,722	6,722	6,027	5,215	4,566	3,981
Freestone County-Steam Electric Power	FREESTONE	Trinity	Lake Livingston (TXU-Fairfield)		20,000	20,000	20,000	20,000	20,000	20,000
Frisco	DENTON	Trinity	NTMWD Sources	NTMWD	12,169	10,222	15,065	17,420	18,435	17,080
Frisco	COLLIN	Trinity	NTMWD Sources	NTMWD	23,246	26,949	26,706	28,521	29,298	27,283
Frisco	COLLIN	Trinity	Trinity Aquifer		0	0	0	0	0	0
Frost	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	69	67	62	57	55	52
Frost	NAVARRO	Trinity	Woodbine Aquifer		56	56	56	56	56	56
Gainesville	COOKE	Red	Hubert H. Moss Lake		1	0	0	0	0	0

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Gainesville	COOKE	Trinity	Hubert H. Moss Lake		1,050	919	873	842	784	755
Gainesville	COOKE	Trinity	Trinity Aquifer		260	260	260	260	260	260
Gainesville	COOKE	Trinity	Trinity Aquifer		2,100	2,100	2,100	2,100	2,100	2,100
Garland	COLLIN	Trinity	NTMWD Sources	NTMWD	0	0	0	0	0	0
Garland	DALLAS	Trinity	NTMWD Sources	NTMWD	41,726	34,229	30,248	26,969	24,231	22,520
Gastonia-Scurry	KAUFMAN	Trinity	NTMWD Sources	NTMWD	759	899	892	957	1,057	1,204
Glenn Heights	DALLAS	Trinity	DWU Sources	DWU	949	893	975	1,025	1,038	994
Glenn Heights	ELLIS	Trinity	DWU Sources	DWU	345	364	432	488	533	554
Glenn Heights	DALLAS	Trinity	Trinity Aquifer		178	178	178	178	178	178
Glenn Heights	ELLIS	Trinity	Trinity Aquifer		51	51	51	51	51	51
Grand Prairie	DALLAS	Trinity	DWU Sources	DWU	17,281	9,453	11,887	13,839	15,465	13,598
Grand Prairie	ELLIS	Trinity	DWU Sources	DWU	56	120	322	530	740	650
Grand Prairie	TARRANT	Trinity	DWU Sources	DWU	4,560	2,574	3,094	3,246	3,199	2,814
Grand Prairie	TARRANT	Trinity	TRWD Sources	Fort Worth	1,065	1,029	874	757	662	578
Grand Prairie	TARRANT	Trinity	TRWD Sources	Mansfield	0	0	0	0	0	0
Grand Prairie	TARRANT	Trinity	TRWD Sources	Midlothian	0	0	0	0	0	0
Grand Prairie	DALLAS	Trinity	Trinity Aquifer		3,200	3,200	3,200	3,200	3,200	3,200
Grand Prairie	ELLIS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Grand Prairie	TARRANT	Trinity	Trinity Aquifer		1,000	1,000	1,000	1,000	1,000	1,000
Grapevine	TARRANT	Trinity	TRWD Sources	TRA	9,551	9,839	9,491	8,332	7,389	6,527
Grapevine	TARRANT	Trinity	DWU Sources	DWU	3,553	2,677	2,532	2,123	1,794	1,473
Grapevine	TARRANT	Trinity	Lake Grapevine		2,017	1,983	1,950	1,917	1,883	1,850
Grapevine	TARRANT	Trinity	Indirect reuse (Lake Grapevine)	Dallas Co. Park Cities MUD	2,196	2,575	2,843	3,021	3,155	3,265
Grayson County-Irrigation	GRAYSON	Red	Lake Texoma	RRA	150	150	150	150	150	150
Grayson County-Irrigation	GRAYSON	Red	Irrigation Local Supply		2,394	2,394	2,394	2,394	2,394	2,394
Grayson County-Irrigation	GRAYSON	Trinity	Irrigation Local Supply		0	0	0	0	0	0
Grayson County-Irrigation	GRAYSON	Red	Woodbine Aquifer		100	100	100	100	100	100
Grayson County-Irrigation	GRAYSON	Trinity	Woodbine Aquifer		2,247	2,247	2,247	2,247	2,247	2,247
Grayson County-Livestock	GRAYSON	Red	Livestock Local Supply		1,077	1,077	1,077	1,077	1,077	1,077
Grayson County-Livestock	GRAYSON	Trinity	Livestock Local Supply		606	606	606	606	606	606
Grayson County-Livestock	GRAYSON	Red	Woodbine Aquifer		230	230	230	230	230	230
Grayson County-Livestock	GRAYSON	Trinity	Woodbine Aquifer		130	130	130	130	130	130
Grayson County-Manufacturing	GRAYSON	Red	Lake Randell		500	500	500	500	500	500
Grayson County-Manufacturing	GRAYSON	Red	Lake Texoma	Sherman	5,223	3,912	3,282	2,849	2,458	2,161
Grayson County-Manufacturing	GRAYSON	Trinity	Lake Texoma		2	2	2	2	2	2
Grayson County-Manufacturing	GRAYSON	Red	Woodbine Aquifer		1,215	1,215	1,215	1,215	1,215	1,215
Grayson County-Manufacturing	GRAYSON	Red	Local supply - WR # 4903 (Red River)		30	30	30	30	30	30
Grayson County-Manufacturing	GRAYSON	Trinity	NTMWD Sources	GTUA/Howe	68	49	33	25	20	17
Grayson County-Mining	GRAYSON	Trinity	Trinity Aquifer		595	595	595	595	595	595
Grayson County-Mining	GRAYSON	Red	Lake Texoma	Red River Authority	100	100	100	100	100	100
Grayson County-Mining	GRAYSON	Red	Woodbine Aquifer		285	285	285	285	285	285
Grayson County-Mining	GRAYSON	Trinity	Woodbine Aquifer		274	274	274	274	274	274
Grayson County-Other	GRAYSON	Red	Lake Texoma	Red River Authority	641	641	641	641	641	641
Grayson County-Other	GRAYSON	Red	Lake Texoma	Denison	250	250	250	250	250	250
Grayson County-Other	GRAYSON	Red	Other Aquifer		35	35	35	35	35	35
Grayson County-Other	GRAYSON	Red	Trinity Aquifer		987	987	987	987	987	987
Grayson County-Other	GRAYSON	Trinity	Trinity Aquifer		183	183	183	183	183	183
Grayson County-Other	GRAYSON	Red	Lake Randell	Denison	60	60	60	60	60	60
Grayson County-Other	GRAYSON	Red	Woodbine Aquifer		1,329	1,388	1,389	1,388	1,388	1,388
Grayson County-Other	GRAYSON	Trinity	Woodbine Aquifer		270	270	270	270	270	270
Grayson County-Other	GRAYSON	Trinity	Lake Texoma	Sherman	76	67	51	81	98	157
Grayson County-Steam Electric	GRAYSON	Trinity	Lake Texoma	Sherman	5,600	5,600	5,600	5,600	5,600	5,600
Gun Barrel City	HENDERSON	Trinity	TRWD Sources	East Cedar Creek FWSD	693	897	861	839	834	841
Gun Barrel City	HENDERSON	Trinity	TRWD Sources	Mabank	704	0	0	0	0	0
Gun Barrel City	HENDERSON	Trinity	TRWD Sources	TRWD	0	599	574	559	556	561
Gunter	GRAYSON	Trinity	Trinity Aquifer		298	298	298	298	298	298
Gunter Rural WSC	COLLIN	Trinity	Trinity Aquifer		452	452	452	452	452	452
Gunter Rural WSC	GRAYSON	Trinity	Trinity Aquifer		182	182	182	182	182	182

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Gunter Rural WSC	COLLIN	Trinity	Lake Texoma	Sherman	116	85	169	214	259	261
Gunter Rural WSC	GRAYSON	Trinity	Lake Texoma	Sherman	11	15	34	48	67	92
Hackberry	DENTON	Trinity	Trinity Aquifer		73	73	73	73	73	73
Hackberry	DENTON	Trinity	NTMWD Sources	NTMWD	67	112	143	147	141	135
Haltom City	TARRANT	Trinity	TRWD Sources	Fort Worth	6,465	7,193	6,351	5,556	4,888	4,289
Haslet	TARRANT	Trinity	Trinity Aquifer		121	121	121	121	121	121
Haslet	TARRANT	Trinity	TRWD Sources	Fort Worth	657	1,317	2,009	1,733	1,513	1,320
Heath	ROCKWALL	Trinity	NTMWD Sources	NTMWD	1,936	2,220	2,399	2,614	2,851	3,192
Hebron	DENTON	Trinity	DWU Sources	Carrollton	105	83	79	73	68	60
Hebron	DENTON	Trinity	UTRWD Sources	UTRWD	0	0	0	0	0	0
Henderson County-Irrigation	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		25	25	25	25	25	25
Henderson County-Irrigation	HENDERSON	Trinity	Irrigation Local Supply		415	415	415	415	415	415
Henderson County-Irrigation	HENDERSON	Trinity	Direct reuse	Pnnacle	32	32	32	32	32	32
Henderson County-Livestock	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		518	518	518	518	518	518
Henderson County-Livestock	HENDERSON	Trinity	Livestock Local Supply		341	341	341	341	341	341
Henderson County-Livestock	HENDERSON	Trinity	Other Aquifer		126	126	126	126	126	126
Henderson County-Livestock	HENDERSON	Trinity	Queen City Aquifer		43	43	43	43	43	43
Henderson County-Livestock	HENDERSON	Trinity	Lake Athens Reuse		2,872	0	0	0	0	0
Henderson County-Manufacturing	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		408	408	408	408	408	408
Henderson County-Manufacturing	HENDERSON	Trinity	Lake Athens	City of Athens	224	72	71	70	69	67
Henderson County-Mining	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		439	439	439	439	439	439
Henderson County-Mining	HENDERSON	Trinity	TRWD Sources	TRWD	79	84	76	72	67	62
Henderson County-Other	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		290	290	290	290	290	290
Henderson County-Other	HENDERSON	Trinity	TRWD Sources	TRWD	78	71	59	50	44	38
Henderson County-Other	HENDERSON	Trinity	Other Aquifer		41	41	41	41	41	41
Henderson County-Steam Electric Power	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		0	0	0	0	0	0
Henderson County-Steam Electric Power	HENDERSON	Trinity	Cedar Creek	TRWD	0	0	0	0	0	0
Henderson County-Steam Electric Power	HENDERSON	Trinity	Forest Grove Reservoir	TXU	0	0	0	0	0	0
Henderson County-Steam Electric Power	HENDERSON	Trinity	Lake Trinidad		3,050	3,050	3,050	3,050	3,050	3,050
Hickory Creek	DENTON	Trinity	UTRWD Sources	Lake Cities MUA	642	323	258	247	200	177
Hickory Creek	DENTON	Trinity	Trinity Aquifer	Lake Cities MUA	46	49	50	57	57	57
Hickory Creek	DENTON	Trinity	Woodbine Aquifer	Lake Cities MUA	99	105	108	123	123	123
Hickory Creek SUD	COLLIN	Trinity	Woodbine Aquifer		15	17	18	19	20	22
Hickory Creek SUD	FANNIN	Sulphur	Woodbine Aquifer		25	28	31	32	35	38
Hickory Creek SUD	FANNIN	Trinity	Woodbine Aquifer		0	0	0	0	0	0
High Point WSC	KAUFMAN	Trinity	NTMWD Sources	Forney	163	190	196	208	223	251
High Point WSC	KAUFMAN	Trinity	NTMWD Sources	Terrell	163	190	196	208	223	251
High Point WSC	ROCKWALL	Trinity	NTMWD Sources	Forney	16	20	22	23	25	28
High Point WSC	ROCKWALL	Trinity	NTMWD Sources	Terrell	16	20	22	23	25	28
Highland Park	DALLAS	Trinity	Lake Grapevine	Dallas County Park Cities MUD	4,233	4,205	4,188	4,176	4,172	4,187
Highland Village	DENTON	Trinity	UTRWD Sources	UTRWD	2,568	1,073	804	644	530	480
Highland Village	DENTON	Trinity	Trinity Aquifer		1,411	1,411	1,411	1,411	1,411	1,411
Honey Grove	FANNIN	Red	Woodbine Aquifer		112	112	112	112	112	112
Honey Grove	FANNIN	Sulphur	Woodbine Aquifer		351	351	351	351	351	351
Howe	GRAYSON	Red	Woodbine Aquifer		54	38	30	26	24	22
Howe	GRAYSON	Trinity	Woodbine Aquifer		247	263	271	275	277	279
Howe	GRAYSON	Trinity	NTMWD Sources	GTUA	215	215	215	215	215	215
Hudson Oaks	PARKER	Trinity	Trinity Aquifer		281	281	281	281	281	281
Hudson Oaks	PARKER	Trinity	TRWD Sources	Weatherford	66	105	135	155	168	174
Hudson Oaks	PARKER	Trinity	Lake Weatherford	Weatherford	43	73	95	111	122	128
Hurst	TARRANT	Trinity	TRWD Sources	Fort Worth	6,652	6,418	5,346	4,533	3,942	3,437
Hurst	TARRANT	Trinity	Trinity Aquifer		816	816	816	816	816	816
Hutchins	DALLAS	Trinity	DWU Sources	DWU	755	757	900	1,094	1,319	1,910
Hutchins	DALLAS	Trinity	Woodbine Aquifer	no longer uses gw (2000)	0	0	0	0	0	0
Irving	DALLAS	Trinity	DWU Sources	DWU	14,497	14,082	2,869	2,694	2,485	2,185
Irving	DALLAS	Trinity	Lake Chapman		42,437	42,217	42,015	41,831	41,682	41,665
Irving	DALLAS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Italy	ELLIS	Trinity	Trinity Aquifer		208	208	208	208	208	208

Table J.1
Current Supplies by Water User Group

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Italy	ELLIS	Trinity	Woodbine Aquifer		79	79	79	79	79	79
Jack County-Irrigation	JACK	Trinity	Irrigation Local Supply		110	110	110	110	110	110
Jack County-Irrigation	JACK	Brazos	Other Aquifer		25	25	25	25	25	25
Jack County-Irrigation	JACK	Trinity	Reuse	Jacksboro	385	385	385	385	385	385
Jack County-Irrigation	JACK	Brazos	Direct reuse	Bryson	27	27	26	26	25	25
Jack County-Livestock	JACK	Brazos	Livestock Local Supply		450	450	450	450	450	450
Jack County-Livestock	JACK	Trinity	Livestock Local Supply		1,215	1,215	1,215	1,215	1,215	1,215
Jack County-Livestock	JACK	Brazos	Other Aquifer		36	36	36	36	36	36
Jack County-Livestock	JACK	Trinity	Other Aquifer		99	99	99	99	99	99
Jack County-Manufacturing	JACK	Brazos	Lost Creek/Jacksboro System	Jacksboro	2	2	2	2	2	2
Jack County-Mining	JACK	Brazos	Other Aquifer		3	3	3	3	3	3
Jack County-Mining	JACK	Trinity	Other Aquifer		281	281	281	281	281	281
Jack County-Mining	JACK	Trinity	Other Local Supply		402	402	402	402	402	402
Jack County-Other	JACK	Brazos	Lake Bryson		0	0	0	0	0	0
Jack County-Other	JACK	Trinity	Lost Creek/Jacksboro System		5	5	5	5	5	5
Jack County-Other	JACK	Brazos	Other Aquifer		131	120	110	101	93	86
Jack County-Other	JACK	Trinity	Other Aquifer		284	295	305	314	322	329
Jack County-Other	JACK	Trinity	Trinity Aquifer		50	50	50	50	50	50
Jack County-Other	JACK	Brazos	Trinity Aquifer		50	50	50	50	50	50
Jack County-Steam Electric Power	JACK	Trinity	TRWD sources	TRWD	2,162	2,500	2,700	2,900	3,100	3,300
Jacksboro	JACK	Trinity	TRWD Sources	TRWD	0	0	0	0	0	0
Jacksboro	JACK	Trinity	Lost Creek/Jacksboro System		991	991	991	991	991	991
Johnson County Rural WSC	ELLIS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Johnson County Rural WSC	TARRANT	Trinity	Trinity Aquifer		0	0	0	0	0	0
JOHNSON COUNTY RURAL WSC	ELLIS	Trinity	Lake Granbury		0	0	0	0	0	0
JOHNSON COUNTY RURAL WSC	TARRANT	Trinity	Lake Granbury	BRA	0	0	0	0	0	0
Johnson County Rural WSC	ELLIS	Trinity	TRWD Sources	Mansfield	42	50	54	58	61	63
Johnson County Rural WSC	TARRANT	Trinity	TRWD Sources	Mansfield	1,633	3,037	5,193	4,482	3,913	3,403
Josephine	COLLIN	Trinity	NTMWD Sources	NTMWD	257	282	293	317	333	357
Justin	DENTON	Trinity	Trinity Aquifer		150	150	150	150	150	150
Justin	DENTON	Trinity	UTRWD Sources	UTRWD	427	309	359	474	471	460
Kaufman	KAUFMAN	Trinity	NTMWD Sources	NTMWD	1,297	1,397	1,423	1,438	1,442	1,617
Kaufman County-Irrigation	KAUFMAN	Trinity	Irrigation Local Supply		64	64	64	64	64	64
Kaufman County-Irrigation	KAUFMAN	Trinity	Nacatoch Aquifer		4	4	4	4	4	4
Kaufman County-Irrigation	KAUFMAN	Trinity	Trinity Aquifer		185	185	185	185	185	185
Kaufman County-Irrigation	KAUFMAN	Trinity	Cedar Creek Lake	TRWD	100	92	78	67	59	52
Kaufman County-Irrigation	KAUFMAN	Trinity	Direct reuse		576	758	758	758	758	758
Kaufman County-Irrigation	KAUFMAN	Trinity	NTMWD Sources		1,984	1,469	1,276	1,146	1,037	963
Kaufman County-Livestock	KAUFMAN	Sabine	Livestock Local Supply		98	98	98	98	98	98
Kaufman County-Livestock	KAUFMAN	Trinity	Livestock Local Supply		1,524	1,524	1,524	1,524	1,524	1,524
Kaufman County-Livestock	KAUFMAN	Sabine	Nacatoch Aquifer		10	10	10	10	10	10
Kaufman County-Livestock	KAUFMAN	Trinity	Nacatoch Aquifer		63	63	63	63	63	63
Kaufman County-Livestock	KAUFMAN	Trinity	Woodbine Aquifer		200	200	200	200	200	200
Kaufman County-Manufacturing	KAUFMAN	Trinity	NTMWD Sources	NTMWD	456	397	369	354	342	340
Kaufman County-Manufacturing	KAUFMAN	Trinity	NTMWD Sources	NTMWD	304	265	246	236	228	227
Kaufman County-Mining	KAUFMAN	Trinity	Other Local Supply		86	86	86	86	86	86
Kaufman County-Other	KAUFMAN	Trinity	TRWD Sources	TRWD	411	379	320	275	239	208
Kaufman County-Other	KAUFMAN	Sabine	NTMWD sources	NTMWD	438	359	310	276	248	230
Kaufman County-Other	KAUFMAN	Trinity	NTMWD sources	NTMWD	999	818	706	629	564	525
Kaufman County-Other	KAUFMAN	Sabine	NTMWD Sources							
Kaufman County-Other	KAUFMAN	Trinity	NTMWD Sources							
Kaufman County-Other	KAUFMAN	Trinity	Nacatoch Aquifer		241	241	241	241	241	241
Kaufman County-Steam Electric Power	KAUFMAN	Trinity	Reuse	Forney (from Garland)	8,979	8,979	8,979	8,979	8,979	8,979
Keller	TARRANT	Trinity	TRWD Sources	Fort Worth	8,856	9,308	8,967	7,681	6,725	5,864
Keller	TARRANT	Trinity	Trinity Aquifer	assume discontinue gw use	10	10	10	10	10	10
Kemp	KAUFMAN	Trinity	TRWD Sources	TRWD	222	245	239	202	175	153
Kennedale	TARRANT	Trinity	Trinity Aquifer		953	953	953	953	953	953

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Kennedale	TARRANT	Trinity	TRWD sources	Fort Worth	48	390	458	471	454	424
Kerens	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	368	368	368	368	368	361
Kerens	NAVARRO	Trinity	Run-of-River Wtr Rt #4971		0	0	0	0	0	0
Kiowa Homeowners WSC	COOKE	Trinity	Trinity Aquifer		887	887	887	887	887	887
Krugerville	DENTON	Trinity	Trinity Aquifer	Mustang WSC	116	116	104	93	81	70
Krugerville	DENTON	Trinity	UTRWD Sources	Mustang WSC	98	60	51	55	59	77
Krum	DENTON	Trinity	UTRWD Sources	UTRWD	208	105	94	94	98	108
Krum	DENTON	Trinity	Trinity Aquifer		427	427	427	427	427	427
Ladonia	FANNIN	Sulphur	Trinity Aquifer		320	320	320	320	320	320
Ladonia	FANNIN	Sulphur	UTRWD Sources	UTRWD	0	0	0	0	0	0
Lake Dallas	DENTON	Trinity	UTRWD Sources	Lake Cities MUA	1,154	508	380	297	239	212
Lake Dallas	DENTON	Trinity	Trinity Aquifer	Lake Cities MUA	82	77	74	68	68	68
Lake Dallas	DENTON	Trinity	Woodbine Aquifer	Lake Cities MUA	178	165	159	148	148	148
Lake Worth	TARRANT	Trinity	Trinity Aquifer		240	240	240	240	240	240
Lake Worth	TARRANT	Trinity	TRWD Sources	Fort Worth	555	611	590	570	558	515
Lakeside	TARRANT	Trinity	Trinity Aquifer		582	582	582	582	582	582
Lancaster	DALLAS	Trinity	DWU Sources	DWU	5,162	5,601	5,601	5,601	5,601	5,066
Lancaster	DALLAS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Lancaster	DALLAS	Trinity	TRWD Sources	Rockett SUD	66	63	57	51	45	39
Lavon WSC	ROCKWALL	Trinity	NTMWD Sources	NTMWD	261	711	804	725	666	757
Lavon WSC	COLLIN	Trinity	NTMWD Sources	NTMWD	288	710	902	1,178	1,514	1,920
Leonard	FANNIN	Sulphur	Woodbine Aquifer		5	6	6	6	7	7
Leonard	FANNIN	Trinity	Woodbine Aquifer		328	327	327	327	326	326
Lewisville	DENTON	Trinity	DWU Sources	DWU	17,712	16,009	16,860	17,541	18,337	18,361
Lewisville	DALLAS	Trinity	DWU Sources	DWU	1	1	1	1	1	1
Lincoln Park	DENTON	Trinity	UTRWD Sources	UTRWD	67	35	30	29	27	28
Lincoln Park	DENTON	Trinity	Trinity Aquifer		49	49	49	49	49	49
Lindsay	COOKE	Trinity	Trinity Aquifer		165	165	165	165	165	165
Little Elm	DENTON	Trinity	NTMWD Sources	NTMWD	3,812	4,367	4,702	4,843	4,379	4,070
Little Elm	DENTON	Trinity	Woodbine Aquifer		286	286	286	286	286	286
Little Elm	DENTON	Trinity	Trinity Aquifer		0	0	0	0	0	0
Log Cabin	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		275	275	275	275	275	275
Lowry Crossing	COLLIN	Trinity	NTMWD Sources	Milligan WSC	362	373	382	352	316	294
Lucas	COLLIN	Trinity	NTMWD Sources	NTMWD	1,018	1,248	1,292	1,489	1,911	2,422
Luella WSC	GRAYSON	Trinity	Woodbine Aquifer		450	450	450	450	450	450
M E N WSC	NAVARRO	Trinity	Corsicana Sources	Corsicana	441	471	479	492	497	515
Mabank	KAUFMAN	Trinity	TRWD Sources	TRWD	571	635	630	636	656	682
Mabank	HENDERSON	Trinity	TRWD Sources	TRWD	94	100	96	94	94	95
Mac Bee WSC	KAUFMAN	Sabine	SRA Sources	SRA	36	43	51	62	74	88
Malakoff	HENDERSON	Trinity	TRWD Sources	TRWD	171	165	145	129	119	112
Malakoff	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		410	410	410	410	410	410
Mansfield	TARRANT	Trinity	TRWD Sources	TRWD	12,211	12,154	12,005	11,796	11,611	11,544
Mansfield	ELLIS	Trinity	TRWD Sources	TRWD	371	428	577	786	971	1,038
Maypearl	ELLIS	Trinity	Woodbine Aquifer		160	160	160	160	160	160
Maypearl	ELLIS	Trinity	Trinity Aquifer		55	55	55	55	55	55
McKinney	COLLIN	Trinity	NTMWD Sources	NTMWD	33,708	43,761	52,261	59,761	58,672	54,530
McLendon-Chisholm	ROCKWALL	Trinity	NTMWD Sources	Blackland WSC, R-C-H WSC	268	241	226	220	227	249
Melissa	COLLIN	Trinity	NTMWD Sources	McKinney	561	561	561	561	561	561
Melissa	COLLIN	Trinity	Woodbine Aquifer		108	108	108	108	108	108
Melissa	COLLIN	Trinity	NTMWD Sources	GTUA	126	3,398	4,684	6,200	8,024	8,226
Mesquite	DALLAS	Trinity	NTMWD Sources	NTMWD	26,024	24,670	23,945	21,892	19,826	18,432
Mesquite	KAUFMAN	Trinity	NTMWD Sources	NTMWD	0	1	1	1	0	1
Midlothian	ELLIS	Trinity	TRWD Sources	TRA	139	1,859	3,213	4,035	4,693	5,112
Midlothian	ELLIS	Trinity	Joe Pool Lake	TRA	2,879	2,475	2,952	3,204	3,348	3,443
Midlothian	ELLIS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Milford	ELLIS	Trinity	Lake Aquilla	Files Valley WSC	84	84	84	84	84	84
Milford	ELLIS	Trinity	Woodbine Aquifer		145	145	145	145	145	145
Milligan WSC	COLLIN	Trinity	NTMWD Sources	NTMWD	199	160	135	117	105	98

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Mineral Wells	PARKER	Brazos	Lake Mineral Wells		0	0	0	0	0	0
Mineral Wells	PARKER	Brazos	Lake Palo Pinto		766	753	744	730	726	726
Mountain Peak SUD	ELLIS	Trinity	Midlothian Sources	Midlothian	109	538	513	578	723	876
Mountain Peak SUD	ELLIS	Trinity	Trinity Aquifer		751	751	751	751	751	751
Mt Zion WSC	ROCKWALL	Trinity	NTMWD Sources	Rockwall	439	355	304	270	242	225
Muenster	COOKE	Trinity	Trinity Aquifer		339	339	339	339	339	339
Muenster	COOKE	Trinity	Muenster Lake		0	0	0	0	0	0
Murphy	COLLIN	Trinity	NTMWD Sources	NTMWD	4,192	6,964	6,048	5,434	4,914	4,567
Mustang WSC	DENTON	Trinity	UTRWD Sources	UTRWD	442	385	381	598	737	868
Mustang WSC	DENTON	Trinity	Trinity Aquifer		721	721	721	721	721	721
Navarro County-Irrigation	NAVARRO	Trinity	Irrigation Local Supply		226	226	226	226	226	226
Navarro County-Livestock	NAVARRO	Trinity	Carrizo-Wilcox Aquifer		15	15	15	15	15	15
Navarro County-Livestock	NAVARRO	Trinity	Livestock Local Supply		1,603	1,603	1,603	1,603	1,603	1,603
Navarro County-Livestock	NAVARRO	Trinity	Nacatoch Aquifer		10	10	10	10	10	10
Navarro County-Livestock	NAVARRO	Trinity	Other Aquifer		104	104	104	104	104	104
Navarro County-Manufacturing	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	586	664	689	729	754	776
Navarro County-Manufacturing	NAVARRO	Trinity	TRWD Sources	TRWD	586	610	573	542	511	482
Navarro County-Mining	NAVARRO	Trinity	Carrizo-Wilcox Aquifer		73	73	73	73	73	73
Navarro County-Mining	NAVARRO	Trinity	Nacatoch Aquifer		38	38	38	38	38	38
Navarro County-Other	NAVARRO	Trinity	TRWD Sources	TRWD	99	90	75	63	54	47
Navarro County-Other	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	150	146	134	127	119	114
Navarro County-Other	NAVARRO	Trinity	Trinity Aquifer		0	0	0	0	0	0
Navarro County-Other	NAVARRO	Trinity	Woodbine Aquifer		200	200	200	200	200	200
Navarro Mills WSC	NAVARRO	Trinity	Corsicana Sources	Corsicana	329	442	470	524	578	625
Nevada	COLLIN	Sabine	NTMWD Sources	NTMWD	176	286	298	531	800	1,860
Nevada	COLLIN	Trinity	NTMWD Sources	NTMWD	69	143	148	265	400	930
New Fairview	WISE	Trinity	TRWD Sources	Walnut Creek SUD	0	0	0	0	0	0
New Fairview	WISE	Trinity	Trinity Aquifer		221	221	221	221	221	221
New Hope	COLLIN	Trinity	NTMWD Sources	North Collin WSC	265	312	447	600	813	1,680
Newark	WISE	Trinity	Trinity Aquifer		169	169	169	169	169	169
Newark	WISE	Trinity	TRWD Sources	Walnut Creek SUD	0	0	0	0	0	0
North Collin WSC	COLLIN	Trinity	NTMWD Sources	NTMWD	864	908	934	969	1,009	1,070
North Hunt WSC	FANNIN	Sulphur	Commerce Sources	Commerce	0	0	0	0	0	0
North Hunt WSC	FANNIN	Sulphur	Woodbine Aquifer		77	77	77	77	77	77
North Richland Hills	TARRANT	Trinity	TRWD Sources	Fort Worth	3,487	3,596	3,271	2,941	2,645	2,357
North Richland Hills	TARRANT	Trinity	TRWD Sources	TRA	8,673	8,889	8,055	7,229	6,492	5,779
North Richland Hills	TARRANT	Trinity	Trinity Aquifer		233	233	233	233	233	233
Northlake	DENTON	Trinity	TRWD Sources	Fort Worth	265	371	364	606	785	824
Northlake	DENTON	Trinity	Woodbine Aquifer		218	218	218	218	218	218
Northlake	DENTON	Trinity	UTRWD Sources	UTRWD	0	145	113	169	201	212
Oak Grove	KAUFMAN	Trinity	NTMWD Sources	Kaufman	122	120	122	128	136	151
Oak Leaf	ELLIS	Trinity	DWU Sources	Glenn Heights (DWU)	260	254	282	302	318	320
Oak Leaf	ELLIS	Trinity	TRWD Sources	Rockett SUD	40	39	35	31	27	24
Oak Point	DENTON	Trinity	UTRWD Sources	Mustang WSC	281	360	406	383	358	358
Oak Point	DENTON	Trinity	Trinity Aquifer		69	69	62	55	48	41
Ovilla	DALLAS	Trinity	DWU Sources	DWU	59	84	127	193	261	338
Ovilla	ELLIS	Trinity	DWU Sources	DWU	802	1,038	1,338	1,552	1,434	1,262
Ovilla	ELLIS	Trinity	Woodbine Aquifer		0	0	0	0	0	0
Palmer	ELLIS	Trinity	Woodbine Aquifer		280	280	280	280	280	280
Pantego	TARRANT	Trinity	Trinity Aquifer		771	771	771	771	771	771
Paradise	WISE	Trinity	TRWD Sources	Walnut Creek SUD	71	82	85	90	98	104
Parker	COLLIN	Trinity	NTMWD Sources	NTMWD	1,482	3,319	4,206	6,141	8,116	10,322
Parker County-Irrigation	PARKER	Trinity	Irrigation Local Supply	Trinity basin	122	122	122	122	122	122
Parker County-Irrigation	PARKER	Brazos	Irrigation Local Supply	Brazos basin	117	117	117	117	117	117
Parker County-Irrigation	PARKER	Brazos	Trinity Aquifer		521	521	521	521	521	521
Parker County-Irrigation	PARKER	Brazos	Direct reuse	Weatherford	0	0	0	0	0	0
Parker County-Irrigation	PARKER	Trinity	Direct reuse	Willow Park/Deer Creek Waterworks	11	11	11	11	11	11
Parker County-Irrigation	PARKER	Brazos	Direct reuse	Millsap	2	2	2	2	2	2

Table J.1
Current Supplies by Water User Group

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Parker County-Livestock	PARKER	Brazos	Livestock Local Supply		903	903	903	903	903	903
Parker County-Livestock	PARKER	Trinity	Livestock Local Supply		1,019	1,019	1,019	1,019	1,019	1,019
Parker County-Livestock	PARKER	Trinity	Trinity Aquifer		213	213	213	213	213	213
Parker County-Manufacturing	PARKER	Brazos	Lake Palo Pinto	Mineral Wells	25	25	25	25	25	25
Parker County-Manufacturing	PARKER	Brazos	Local Supply		0	0	0	0	0	0
Parker County-Manufacturing	PARKER	Brazos	Lake Weatherford	Weatherford	45	45	45	45	45	45
Parker County-Manufacturing	PARKER	Trinity	Lake Weatherford	Weatherford	191	221	207	196	185	174
Parker County-Manufacturing	PARKER	Trinity	TRWD Sources	Weatherford	623	646	608	577	544	514
Parker County-Manufacturing	PARKER	Trinity	Trinity Aquifer		18	18	18	18	18	18
Parker County-Mining	PARKER	Brazos	Other Local Supply		16	16	15	15	14	14
Parker County-Mining	PARKER	Trinity	Other Local Supply		4	4	5	5	6	6
Parker County-Mining	PARKER	Brazos	Possum Kingdom (BRA)	BRA	2,000	2,000	2,000	2,000	2,000	2,000
Parker County-Mining	PARKER	Trinity	Trinity Aquifer		5,868	5,868	5,868	5,868	5,868	5,868
Parker County-Other	PARKER	Brazos	Lake Palo Pinto	Mineral Wells	474	479	479	479	479	479
Parker County-Other	PARKER	Trinity	TRWD Sources	Walnut Crk SUD/Aqua Tex	0	0	0	0	0	0
Parker County-Other	PARKER	Trinity	Lake Weatherford	Weatherford	0	86	74	64	53	43
Parker County-Other	PARKER	Trinity	TRWD Sources	Weatherford	0	144	128	113	95	81
Parker County-Other	PARKER	Brazos	Other Aquifer		50	50	50	50	50	50
Parker County-Other	PARKER	Brazos	Trinity Aquifer		1,868	1,868	1,868	1,868	1,868	1,868
Parker County-Other	PARKER	Trinity	Trinity Aquifer		3,947	3,947	3,947	3,947	3,947	3,947
Parker County-Steam Electric Power	PARKER	Trinity	Lake Weatherford	Weatherford	24	20	22	38	44	53
Payne Springs	HENDERSON	Trinity	TRWD Sources	East Cedar Creek FWSD	0	0	0	0	0	0
Payne Springs	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		96	96	96	96	96	96
Pecan Hill	ELLIS	Trinity	Midlothian sources	Rockett SUD (Midlothian)	43	54	76	100	128	161
Pecan Hill	ELLIS	Trinity	TRWD Sources	Rockett SUD	117	129	129	128	126	124
Pelican Bay	TARRANT	Trinity	Trinity Aquifer		178	178	178	178	178	178
Pilot Point	DENTON	Trinity	Trinity Aquifer		673	673	673	673	673	673
Pilot Point	DENTON	Trinity	UTRWD Sources	UTRWD	0	0	0	0	0	0
Plano	DENTON	Trinity	NTMWD Sources	NTMWD	1,595	1,799	1,550	1,387	1,250	1,162
Plano	COLLIN	Trinity	NTMWD Sources	NTMWD	73,107	60,732	53,107	47,880	43,443	40,525
Ponder	DENTON	Trinity	Trinity Aquifer		359	359	359	359	359	359
Post Oak Bend City	KAUFMAN	Trinity	NTMWD Sources	Rose Hill SUD	83	112	160	234	346	524
Pottsboro	GRAYSON	Red	Lake Texoma	Denison	561	561	561	561	561	561
Pottsboro	GRAYSON	Red	Woodbine Aquifer		123	123	123	123	123	123
Princeton	COLLIN	Trinity	NTMWD Sources	NTMWD	1,317	2,163	2,736	4,098	6,176	8,610
Prosper	COLLIN	Trinity	Woodbine Aquifer		605	605	605	605	605	605
Prosper	COLLIN	Trinity	NTMWD Sources	Frisco	1,948	2,636	4,007	4,972	7,287	7,205
Prosper	DENTON	Trinity	UTRWD Sources	UTRWD	98	773	917	1,069	940	897
R-C-H WSC	ROCKWALL	Trinity	NTMWD Sources	Mt Zion WSC	635	741	650	583	524	487
Red Oak	ELLIS	Trinity	Woodbine Aquifer		605	605	605	605	605	605
Red Oak	ELLIS	Trinity	DWU Sources		1,741	2,568	3,178	3,371	3,312	3,107
Red Oak	ELLIS	Trinity	Midlothian sources	Rockett SUD (Midlothian)	31	59	91	115	141	169
Red Oak	ELLIS	Trinity	TRWD Sources	Rockett SUD	87	142	155	148	140	130
Reno	PARKER	Trinity	Trinity Aquifer		167	167	167	167	167	167
Reno	PARKER	Trinity	TRWD Sources	Springtown/ Walnut Crk	148	141	121	104	95	88
Rhome	WISE	Trinity	Trinity Aquifer		243	243	243	243	243	243
Rhome	WISE	Trinity	TRWD Sources	Walnut Creek SUD	330	654	1,012	1,288	1,487	1,611
Rice	NAVARRO	Trinity	Lake Bardwell	Ennis (TRA)	0	0	0	0	0	0
Rice	NAVARRO	Trinity	Navarro Mills Reservoir	Rice WSC (Corsicana)	229	265	285	315	347	384
Rice WSC	NAVARRO	Trinity	Corsicana Sources	Corsicana (TRA)	869	1,041	1,161	1,300	1,479	1,677
Rice WSC	ELLIS	Trinity	Corsicana Sources	Corsicana (TRA)	76	126	162	198	234	268
Rice WSC	ELLIS	Trinity	Lake Bardwell	Ennis (TRA)	51	39	29	22	16	12
Richardson	DALLAS	Trinity	NTMWD Sources	NTMWD	24,997	20,783	17,986	15,984	14,349	13,336
Richardson	COLLIN	Trinity	NTMWD Sources	NTMWD	6,800	8,618	7,458	6,628	5,950	5,530
Richland Hills	TARRANT	Trinity	TRWD Sources	Fort Worth	854	844	764	708	648	576
Richland Hills	TARRANT	Trinity	Trinity Aquifer		462	462	462	462	462	462
River Oaks	TARRANT	Trinity	TRWD Sources	TRWD	1,000	905	744	628	545	476
Roanoke	DENTON	Trinity	Trinity Aquifer		258	258	258	258	258	258

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Roanoke	DENTON	Trinity	TRWD Sources	Fort Worth	1,482	2,271	2,559	2,761	3,267	3,481
Rockett SUD	ELLIS	Trinity	Midlothian sources	Midlothian	1,172	574	509	456	403	356
Rockett SUD	ELLIS	Trinity	Lake Waxahachie	Waxahachie	0	0	0	0	0	0
Rockett SUD	ELLIS	Trinity	Lake Waxahachie	Waxahachie	0	0	0	0	0	0
Rockett SUD	DALLAS	Trinity	Midlothian sources	Midlothian	105	23	-27	-80	-140	-204
Rockett SUD	DALLAS	Trinity	Lake Waxahachie	Waxahachie	0	0	0	0	0	0
Rockett SUD	ELLIS	Trinity	Trinity Aquifer		0	0	0	0	0	0
Rockett SUD	ELLIS	Trinity	TRWD Sources	TRWD/TRA	3,369	4,214	4,685	4,848	4,599	4,054
Rockwall	ROCKWALL	Trinity	NTMWD Sources	NTMWD	9,767	14,322	15,266	15,981	14,833	13,786
Rockwall County-Livestock	ROCKWALL	Sabine	Livestock Local Supply		32	32	32	32	32	32
Rockwall County-Livestock	ROCKWALL	Trinity	Livestock Local Supply		136	136	136	136	136	136
Rockwall County-Livestock	ROCKWALL	Trinity	Other Aquifer		21	21	21	21	21	21
Rockwall County-Manufacturing	ROCKWALL	Sabine	NTMWD Sources	NTMWD	8	7	7	8	7	7
Rockwall County-Manufacturing	ROCKWALL	Trinity	NTMWD Sources	NTMWD	12	11	11	11	11	11
Rockwall County-Mining	ROCKWALL	Sabine	Other Local Supply		33	33	33	33	33	33
Rockwall County-Other	ROCKWALL	Sabine	NTMWD Sources	Rockwall	244	201	175	156	141	131
Rockwall County-Other	ROCKWALL	Trinity	NTMWD Sources	Rockwall	137	112	98	87	79	73
Rockwall County-Other	ROCKWALL	Sabine	Other Aquifer		187	187	187	187	187	187
Rockwall County-Other	ROCKWALL	Trinity	Other Aquifer		0	0	0	0	0	0
Rockwall County-Irrigation	ROCKWALL	Trinity	Reuse	NTMWD	672	672	672	672	672	672
Rockwall County-Irrigation	ROCKWALL	Trinity	Irrigation Local Supply		0	0	0	0	0	0
Rockwall County-Irrigation	ROCKWALL	Trinity	Direct reuse	Royce City	112	112	112	112	112	112
Rockwall County-Irrigation	ROCKWALL	Trinity	DWU Sources	Dallas	255	208	199	187	172	151
Rockwall County-Irrigation	ROCKWALL	Trinity	NTMWD Sources	NTMWD	62	27	0	0	0	0
Rowlett	DALLAS	Trinity	NTMWD Sources	NTMWD	10,029	9,964	9,871	9,734	9,362	9,200
Rowlett	ROCKWALL	Trinity	NTMWD Sources	NTMWD	1,475	1,212	1,049	937	838	779
Royse City	COLLIN	Sabine	NTMWD Sources	NTMWD	282	698	1,185	1,597	1,925	2,299
Royse City	ROCKWALL	Sabine	NTMWD Sources	NTMWD	2,188	2,901	3,027	3,350	3,566	3,851
Runaway Bay	WISE	Trinity	TRWD Sources	TRWD	293	327	335	330	323	313
Sachse	COLLIN	Trinity	NTMWD Sources	NTMWD	1,043	1,126	973	865	782	727
Sachse	DALLAS	Trinity	NTMWD Sources	NTMWD	3,308	3,044	3,131	2,784	2,518	2,340
Saginaw	TARRANT	Trinity	TRWD Sources	Fort Worth	3,126	3,447	3,257	3,030	2,780	2,517
Saint Paul	COLLIN	Trinity	NTMWD Sources	NTMWD	190	381	657	939	1,009	986
Sanctuary	PARKER	Trinity	TRWD Sources	Walnut Creek SUD	90	198	245	250	252	246
Sanger	DENTON	Trinity	UTRWD Sources	UTRWD	561	561	561	561	534	497
Sanger	DENTON	Trinity	Trinity Aquifer		543	543	543	543	543	543
Sansom Park Village	TARRANT	Trinity	Trinity Aquifer		552	552	552	552	552	552
Sansom Park Village	TARRANT	Trinity	TRWD Sources	Fort Worth	45	52	44	36	33	32
Sardis-Lone Elm WSC	ELLIS	Trinity	Midlothian sources	Midlothian	0	0	0	0	0	0
Sardis-Lone Elm WSC	ELLIS	Trinity	Trinity Aquifer		1,142	1,143	1,143	1,143	1,143	1,143
Sardis-Lone Elm WSC	DALLAS	Trinity	Trinity Aquifer		8	7	7	7	7	7
Sardis-Lone Elm WSC	ELLIS	Trinity	TRWD Sources	Rockett SUD	0					
Savoy	FANNIN	Red	Woodbine Aquifer		119	119	119	119	119	119
Scurry	KAUFMAN	Trinity	NTMWD Sources	Gastonia-Scurry SUD	85	83	83	88	92	99
Seagoville	DALLAS	Trinity	DWU Sources	DWU	1,914	1,905	2,161	2,336	2,408	2,278
Seagoville	KAUFMAN	Trinity	DWU Sources	DWU	3	4	5	7	9	11
Seven Points	HENDERSON	Trinity	TRWD Sources	West Cedar Creek MUD	186	204	198	194	195	198
Shady Shores	DENTON	Trinity	UTRWD Sources	Lake Cities MUA	304	164	137	107	86	76
Shady Shores	DENTON	Trinity	Trinity Aquifer	Lake Cities MUA	22	25	26	25	25	25
Shady Shores	DENTON	Trinity	Woodbine Aquifer	Lake Cities MUA	47	53	57	53	53	53
Sherman	GRAYSON	Red	Lake Texoma	GTUA	2,572	2,472	2,610	2,745	2,950	3,203
Sherman	GRAYSON	Red	Trinity Aquifer		4,083	4,083	4,083	4,083	4,083	4,083
Sherman	GRAYSON	Red	Woodbine Aquifer		3,463	3,463	3,463	3,463	3,463	3,463
South Grayson WSC	GRAYSON	Trinity	Woodbine Aquifer		91	91	91	91	91	91
South Grayson WSC	COLLIN	Trinity	Woodbine Aquifer		269	269	269	269	269	269
South Grayson WSC	GRAYSON	Trinity	Trinity Aquifer		91	91	91	91	91	91
South Grayson WSC	COLLIN	Trinity	Trinity Aquifer		269	269	269	269	269	269
South Grayson WSC	GRAYSON	Trinity	NTMWD Sources	GTUA	0	0	0	0	0	0

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
South Grayson WSC	COLLIN	Trinity	NTMWD Sources	GTUA	0	0	0	0	0	0
Southlake	TARRANT	Trinity	TRWD Sources	Fort Worth	8,813	8,607	7,348	6,540	5,936	5,436
Southlake	DENTON	Trinity	TRWD Sources	Fort Worth	255	414	413	556	718	673
Southmayd	GRAYSON	Red	Woodbine Aquifer		0	0	0	0	0	0
Southmayd	GRAYSON	Red	Trinity Aquifer		130	130	130	130	130	130
Southmayd	GRAYSON	Red	Woodbine Aquifer	Monarch WSC (Grayson County Other)	60	0	0	0	0	0
Southwest Fannin County SUD	FANNIN	Red	Woodbine Aquifer		747	745	744	743	743	742
Southwest Fannin County SUD	FANNIN	Trinity	Woodbine Aquifer		5	7	8	9	9	10
Southwest Fannin County SUD	GRAYSON	Red	Woodbine Aquifer		51	51	51	51	51	51
Springtown	PARKER	Trinity	Trinity Aquifer		52	52	52	52	52	52
Springtown	PARKER	Trinity	TRWD Sources	TRWD	246	388	445	489	518	534
Sunnyvale	DALLAS	Trinity	NTMWD Sources	NTMWD	1,756	1,997	2,216	2,426	2,593	2,465
Talty	KAUFMAN	Trinity	NTMWD Sources	Forney	808	1,397	1,652	1,921	2,227	2,641
Tarrant County-Irrigation	TARRANT	Trinity	Irrigation Local Supply		549	549	549	549	549	549
Tarrant County-Irrigation	TARRANT	Trinity	Trinity Aquifer		15	15	15	15	15	15
Tarrant County-Irrigation	TARRANT	Trinity	Indirect reuse	Dallas Co. Park Cities	1,493	1,663	1,784	1,864	1,924	1,974
Tarrant County-Irrigation	TARRANT	Trinity	Direct Reuse	Azle	300	300	300	300	300	300
Tarrant County-Irrigation	TARRANT	Trinity	TRWD sources	TRWD	4,208	3,863	3,282	2,840	2,487	2,168
Tarrant County-Irrigation	TARRANT	Trinity	Direct reuse	Fort Worth	897	897	897	897	897	897
Tarrant County-Livestock	TARRANT	Trinity	Livestock Local Supply		442	442	442	442	442	442
Tarrant County-Livestock	TARRANT	Trinity	Trinity Aquifer		361	361	361	361	361	361
Tarrant County-Manufacturing	TARRANT	Trinity	TRWD Sources	TRWD/FW	17,258	18,769	18,432	18,172	17,681	16,725
Tarrant County-Mining	TARRANT	Trinity	Other Local Supply		342	342	342	342	342	342
Tarrant County-Mining	TARRANT	Trinity	TRWD Sources	TRWD	536	415	366	329	298	267
Tarrant County-Mining	TARRANT	Trinity	Trinity Aquifer		1,073	1,073	1,073	1,073	1,073	1,073
Tarrant County-Other	TARRANT	Trinity	TRWD sources	TRWD/FW	1,832	1,657	1,366	1,128	972	847
Tarrant County-Other	TARRANT	Trinity	Trinity Aquifer		1,597	1,597	1,597	1,597	1,597	1,597
Tarrant County-Steam Electric Power	TARRANT	Trinity	TRWD sources	TRWD	2,640	2,247	2,059	1,782	1,560	1,360
Tarrant County-Steam Electric Power	TARRANT	Trinity	Run-of-River Wtr Rt #3375	TXU	235	187	219	257	304	362
Teague	FREESTONE	Brazos	Teague City Lake		0	0	0	0	0	0
Teague	FREESTONE	Trinity	Teague City Lake		0	0	0	0	0	0
Teague	FREESTONE	Brazos	Carrizo-Wilcox Aquifer		388	388	387	387	387	388
Teague	FREESTONE	Trinity	Carrizo-Wilcox Aquifer		606	606	607	607	607	606
Terrell	KAUFMAN	Trinity	NTMWD Sources	NTMWD	3,779	8,452	10,448	12,155	12,481	13,154
The Colony	DENTON	Trinity	DWU Sources	DWU	4,768	5,257	5,558	5,339	5,035	4,467
The Colony	DENTON	Trinity	NTMWD Sources	Plano	568	633	609	560	517	485
The Colony	DENTON	Trinity	Trinity Aquifer		934	934	934	934	934	934
Tioga	GRAYSON	Trinity	Trinity Aquifer		211	211	211	211	211	211
Tom Bean	GRAYSON	Red	Woodbine Aquifer		42	42	42	42	42	42
Tom Bean	GRAYSON	Trinity	Woodbine Aquifer		205	205	205	205	205	205
Tool	HENDERSON	Trinity	TRWD Sources	West Cedar Creek MUD	401	415	390	370	360	358
Trenton	FANNIN	Trinity	Woodbine Aquifer		214	214	214	214	214	214
Trinidad	HENDERSON	Trinity	Trinidad City Lake		450	450	450	450	450	450
Trophy Club	DENTON	Trinity	Trinity Aquifer	Trophy Club MUD #1	770	770	770	770	770	770
Trophy Club	DENTON	Trinity	TRWD Sources	Trophy Club MUD #1 (Fort Worth)	2,057	2,222	2,112	1,999	1,920	1,822
Two Way WSC	COOKE	Red	Trinity Aquifer		10	11	11	11	11	11
Two Way WSC	GRAYSON	Red	Trinity Aquifer		393	392	393	394	393	393
Two Way WSC	GRAYSON	Trinity	Trinity Aquifer		219	219	218	217	218	218
University Park	DALLAS	Trinity	Lake Grapevine	Dallas County Park Cities MUD	7,754	7,765	7,756	7,733	7,742	7,760
Valley View	COOKE	Trinity	Trinity Aquifer		363	363	363	363	363	363
Van Alstyne	GRAYSON	Trinity	Trinity Aquifer		235	235	235	235	235	235
Van Alstyne	GRAYSON	Trinity	Woodbine Aquifer		215	215	215	215	215	215
Van Alstyne	GRAYSON	Trinity	NTMWD Sources	GTUA	46	782	1,291	1,291	1,291	1,291
Virginia Hill WSC	HENDERSON	Trinity	Carrizo-Wilcox Aquifer		443	443	443	443	443	443
Walnut Creek SUD	PARKER	Trinity	TRWD Sources	TRWD/walnut	1,950	1,945	1,946	1,952	1,948	1,941
Walnut Creek SUD	WISE	Trinity	TRWD Sources	TRWD/walnut	250	255	254	248	252	259
Watauga	TARRANT	Trinity	TRWD Sources	North Richland Hills (Fort Worth)	3,401	3,243	2,730	2,306	2,002	1,746
Waxahachie	ELLIS	Trinity	Lake Waxahachie	Ellis County WCID #1	2,248	2,210	2,055	1,860	1,719	1,636

Table J.1
Current Supplies by Water User Group

WUG	County Water Used	Basin Water Used	Source	Purchased From	2010	2020	2030	2040	2050	2060
Waxahachie	ELLIS	Trinity	Reuse	TRA	220	252	489	249	351	911
Waxahachie	ELLIS	Trinity	Lake Bardwell	TRA	4,320	4,320	4,183	3,989	3,794	3,600
Waxahachie	ELLIS	Trinity	TRWD Sources		1,182	825	1,814	4,022	5,605	5,605
Waxahachie	ELLIS	Trinity	TRWD Sources	Rockett SUD	451	432	386	344	305	267
Weatherford	PARKER	Brazos	TRWD Sources	TRWD	106	155	175	189	200	210
Weatherford	PARKER	Trinity	TRWD Sources	TRWD	2,214	3,322	3,586	3,734	3,852	3,951
Weatherford	PARKER	Brazos	Lake Weatherford		94	113	116	116	117	117
Weatherford	PARKER	Trinity	Lake Weatherford		1,982	2,372	2,325	2,267	2,223	2,175
Weatherford	PARKER	Trinity	Trinity Aquifer		0	0	0	0	0	0
West Cedar Creek MUD	KAUFMAN	Trinity	TRWD Sources	TRWD	698	777	822	860	893	919
West Cedar Creek MUD	HENDERSON	Trinity	TRWD Sources	TRWD	988	937	892	854	821	795
West Wise Rural WSC	WISE	Trinity	TRWD Sources	TRWD	478	481	442	417	402	390
West Wise Rural WSC	WISE	Trinity	TRWD Sources	Walnut Creek SUD						
Weston	COLLIN	Trinity	Woodbine Aquifer		276	276	276	276	276	276
Westover Hills	TARRANT	Trinity	TRWD Sources	Fort Worth	274	252	212	182	158	138
Westworth Village	TARRANT	Trinity	TRWD Sources	Fort Worth	344	378	332	298	278	267
White Settlement	TARRANT	Trinity	Trinity Aquifer		1,007	1,007	1,007	1,007	1,007	1,007
White Settlement	TARRANT	Trinity	TRWD Sources	Fort Worth	1,173	1,506	1,353	1,231	1,196	1,157
Whitesboro	GRAYSON	Red	Trinity Aquifer		480	537	563	581	591	594
Whitesboro	GRAYSON	Trinity	Trinity Aquifer		360	303	277	259	249	246
Whitewright	GRAYSON	Red	Woodbine Aquifer		434	433	432	431	431	430
Whitewright	FANNIN	Red	Woodbine Aquifer		4	5	6	7	7	8
Willow Park	PARKER	Trinity	Trinity Aquifer		757	757	757	757	757	757
Wilmer	DALLAS	Trinity	Trinity Aquifer		322	322	322	322	322	322
Wilmer	DALLAS	Trinity	DWU Sources	Hutchins	111	154	208	372	813	1,224
Wise County-Irrigation	WISE	Trinity	Irrigation Local Supply		139	139	139	139	139	139
Wise County-Irrigation	WISE	Trinity	Trinity Aquifer		290	290	290	290	290	290
Wise County-Irrigation	WISE	Trinity			212	195	165	143	125	109
Wise County-Livestock	WISE	Trinity	Livestock Local Supply		1,117	1,117	1,117	1,117	1,117	1,117
Wise County-Livestock	WISE	Trinity	Trinity Aquifer		807	807	807	807	807	807
Wise County-Manufacturing	WISE	Trinity	TRWD Sources	TRWD	2,299	2,429	2,313	2,202	2,083	1,981
Wise County-Manufacturing	WISE	Trinity	Other Aquifer		14	14	14	14	14	14
Wise County-Irrigation	WISE	Trinity	TRWD Sources	TRWD	124	124	124	124	124	109
Wise County-Manufacturing	WISE	Trinity	Other Local Supply		0	0	0	0	0	0
Wise County-Mining	WISE	Trinity	TRWD Sources	TRWD	7,943	7,966	7,399	6,964	6,605	6,177
Wise County-Mining	WISE	Trinity	Run-of-river - Trinity		51	51	51	51	51	51
Wise County-Mining	WISE	Trinity	Reuse Supply		15,930	14,074	12,152	10,643	9,236	8,061
Wise County-Mining	WISE	Trinity	Trinity Aquifer		2,553	2,553	2,553	2,553	2,553	2,553
Wise County-Other	WISE	Trinity	TRWD Sources	TRWD/walnut	1,863	1,956	1,646	1,398	1,212	1,057
Wise County-Other	WISE	Trinity	Trinity Aquifer		2,984	2,984	2,984	2,984	2,984	2,984
Wise County-Steam Electric Power	WISE	Trinity	TRWD sources	TRWD	1,751	1,143	949	1,268	1,207	1,416
Woodbine WSC	COOKE	Red	Trinity Aquifer		13	13	13	13	13	13
Woodbine WSC	COOKE	Trinity	Trinity Aquifer		635	635	635	635	635	635
Woodbine WSC	GRAYSON	Trinity	Trinity Aquifer		13	13	13	13	13	13
Wortham	FREESTONE	Trinity	Wortham Lake		0	0	0	0	0	0
Wortham	FREESTONE	Trinity	Lake Mexia	Mexia	0	0	0	0	0	0
Wylie	ROCKWALL	Trinity	NTMWD Sources	NTMWD	133	169	192	216	195	181
Wylie	COLLIN	Trinity	NTMWD Sources	NTMWD	6,412	6,819	7,167	7,655	6,922	6,433
Wylie	DALLAS	Trinity	NTMWD Sources	NTMWD	118	123	124	133	120	112
TOTAL					**1,799,744**	**1,774,732**	**1,775,560**	**1,786,950**	**1,788,007**	**1,779,912**

APPENDIX K

ESTIMATION OF SAVINGS AND COSTS FOR WATER CONSERVATION STRATEGIES

Estimation of Savings and Costs for Potentially Feasible Water Conservation Strategies in Region C

PROJECT: 0312-041-01

DATE: February 26, 2010

PREPARED FOR: File

PREPARED BY: Adam Rose, P.E.
Alan Plummer Associates, Inc. (APAI)

1.0 INTRODUCTION

The *2011 Region C Water Plan* (1) updated the potentially feasible water conservation strategies from the *2006 Region C Water Plan* (2) as shown in Table 1.1. Extensive documentation of projected water savings and probable cost assumptions of conservation strategies is included in Appendix M and Chapter 4B of the *2006 Region C Water Plan*.

Table 1.1: Potentially Feasible Water Conservation Strategies

Strategy	2006 Category	2011 Category	User Group Type	Memo Section
Low-flow plumbing fixture rules[a]	Minimum	Minimum	Municipal	2.0
Federal residential clothes washer standards	Minimum	Minimum	Municipal	3.0
Public and school education	Basic	Basic	Municipal	4.0
Water use reduction due to increasing water prices	Basic	Basic	Municipal	5.0
Water system audit, leak detection and repair, pressure control	Basic	Basic	Municipal	6.0
Water conservation pricing structure	Expanded	Basic	Municipal	7.0
Water waste prohibition	Expanded	Basic	Municipal	8.0
Coin-operated clothes washer rebate	Expanded	Expanded	Municipal	9.0
Residential customer water audit	Expanded	Expanded	Municipal	10.0
ICI water audit, water waste reduction, and site-specific conservation program	Expanded	Expanded	Municipal	11.0
Irrigation Restrictions	Not Implemented	Expanded	Municipal	12.0
Manufacturing general rebate	Manufacturing	Manufacturing	Manufacturing	13.0
Golf course conservation	Irrigation	Irrigation	Irrigation	14.0
Efficient new steam electric power plants	Steam Electric	Steam Electric	Various	
Reuse of treated wastewater effluent	N/A	N/A	Various	

(a) Ultra-low flow toilets only evaluated in *2011 Region C Water Plan*

This memorandum has two purposes:

- To document the criteria for recommending appropriate packages of strategies for each Water User Group (WUG).
- To document assumptions made in projecting water savings and opinions of probable cost for these measures.
- To provide updates on categorization and utilization of specific water conservation measures in the *2011 Region C Water Plan*.

Sections 2 and 3 include conservation measures mandated by federal laws (collected and called minimum requirements). Sections 4 through 8 include measures from the basic conservation package. Sections 9 through 12 include measures from the expanded conservation package. Sections 13 and 14 include non-municipal conservation measures. Savings from efficient steam electric power plants are included in updated demands for the non-municipal WUG. Chapter 6 of the *2011 Region C Water Plan* includes more detailed descriptions of each package.

Reuse of treated wastewater effluent was considered on a case-by-case basis, and savings and costs are documented elsewhere in the plan. Summaries of the potential water savings and cost per 1,000 gallons of water saved for each municipal conservation strategy are presented in Tables 1.2 and 1.3. The water savings represent regional totals and the costs are regional average costs. Water savings and costs may differ for individual water user groups.

Table 1.2: Summary of Municipal Water Savings by Conservation Strategy

Strategy	Implementation Date	Conservation Package	Water Savings (acre-feet per year)					
			2010	2020	2030	2040	2050	2060
Low Flow Plumbing Fixtures [(a)]	2010	Minimum	0	4,077	12,019	20,595	28,925	36,819
Implement New Federal Clothes Washer Standards	2010	Minimum	6,697	27,089	38,612	44,587	50,061	55,945
Minimum Package Subtotal			**6,697**	**31,166**	**50,632**	**65,183**	**78,986**	**92,764**
Public and School Education	2010	Basic	19,402	38,245	52,968	70,322	90,402	114,741
Impact of Increasing Water Prices	2010	Basic	5,157	12,224	20,876	31,255	43,536	58,483
Water System Audit	2010	Basic	2,163	7,585	12,307	14,298	16,033	17,198
Water Conservation Pricing Structure	2010	Basic	530	3,278	6,284	7,311	8,035	8,359
Water Waste Prohibition		Basic	367	1,990	3,866	4,650	5,188	5,573
Basic Package Subtotal			**27,618**	**63,321**	**96,301**	**127,835**	**163,195**	**204,354**
Residential Customer Audit	2010	Expanded	306	4,391	5,660	6,421	7,114	7,791
Landscape Irrigation Restrictions	2010	Expanded	4,474	5,481	6,515	7,445	8,183	8,815
ICI Water Audit	2020	Expanded	120	199	2,315	4,510	5,022	5,681
Coin-Op Water-Efficient Clothes Washer Rebate	2020	Expanded	122	767	1,717	1,922	2,143	2,329
Expanded Conservation Package Subtotal			**5,021**	**10,839**	**16,207**	**20,297**	**22,462**	**24,617**
Overall Total			**39,336**	**105,326**	**163,140**	**213,315**	**264,643**	**321,735**

(a) Only includes additional estimated savings from ultra-low flow toilets as described in Section 2.0. Other low flow fixture savings included in demand estimates.

Table 1.3: Summary of Cost by Municipal Conservation Strategy

Strategy	Implementation Date	Conservation Package	Cost Per 1,000 Gallons of Water Saved					
			2010	2020	2030	2040	2050	2060
Low Flow Plumbing Fixtures	2010	Minimum	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Implement New Federal Clothes Washer Standards	2010	Minimum	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Minimum Package Subtotal			$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Public and School Education	2010	Basic	$0.82	$0.77	$0.63	$0.54	$0.47	$0.40
Impact of Increasing Water Prices	2010	Basic	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Water System Audit	2010	Basic	$4.13	$1.69	$1.16	$1.14	$1.11	$1.13
Water Conservation Pricing Structure	2010	Basic	$0.40	$0.07	$0.00	$0.00	$0.00	$0.00
Water Waste Prohibition		Basic	$1.95	$0.90	$0.54	$0.50	$0.50	$0.51
Basic Package Subtotal			$0.93	$0.70	$0.52	$0.44	$0.39	$0.33
Residential Customer Audit	2010	Expanded	$2.35	$2.05	$1.84	$1.86	$1.88	$1.92
Landscape Irrigation Restrictions	2010	Expanded	$0.35	$0.35	$0.34	$0.35	$0.35	$0.36
ICI Water Audit	2020	Expanded	$0.89	$1.04	$1.05	$1.06	$1.09	$1.10
Coin-Op Water-Efficient Clothes Washer Rebate	2020	Expanded	$0.49	$0.32	$0.24	$0.23	$0.22	$0.22
Expanded Conservation Package Subtotal			$0.49	$1.05	$0.95	$0.97	$0.99	$1.01

2.0 FEDERAL LOW/ULTRA-LOW FLOW PLUMBING FIXTURE RULES

2.1. *Applicability*

Potential savings from federal low and ultra-low flow plumbing fixtures were evaluated for all municipal WUGs.

2.2 Projected Water Savings

Projected water savings for low flow plumbing fixture rules (in effect since 1994) have been estimated by the Texas Water Development Board (TWDB) and are included in Region C demand projections. These include low flow faucets and toilets (1.6 gallons per flush, gpf). House Bill 2667, implemented September 1, 2009, further reduces the maximum volume per flush of toilets available for sale after January 1, 2014 from 1.6 gpf to 1.28 gpf. The further reduction in water demands from this legislation is not included in the water demand projections. The additional demands were calculated as the gallons per flush of each type of toilet multiplied by the percentage of each type in service. To be conservative the phase-in (for example availability of 1.28 gpf toilets prior to January 1, 2014) of each toilet type was not included in estimating number of toilets. Ranges of gpf for toilets prior to the 1.6 gpf rule vary, so to be conservative a value of 3 gpf was used as an average.

The life of a toilet is approximately 30 years[3]. The assumed natural replacement rate is normally distributed (one-sided) with standard deviation equal to the toilet life, mean equal to the implementation date, and independent variable equal to the planning year. Figure 2.1 displays the assumed percentages of each type of toilet during the planning periods. The total savings from the implementation of 1.28 gpf toilets was estimated for the entire Region C planning area and not accounted for as specific conservation savings for any single water user.

The total projected 2060 regional water demand is reduced an additional 1% from what it would be without low flow fixtures.

2.3 Additional Data Requirements

No additional data are needed to project water savings from plumbing fixture rules.

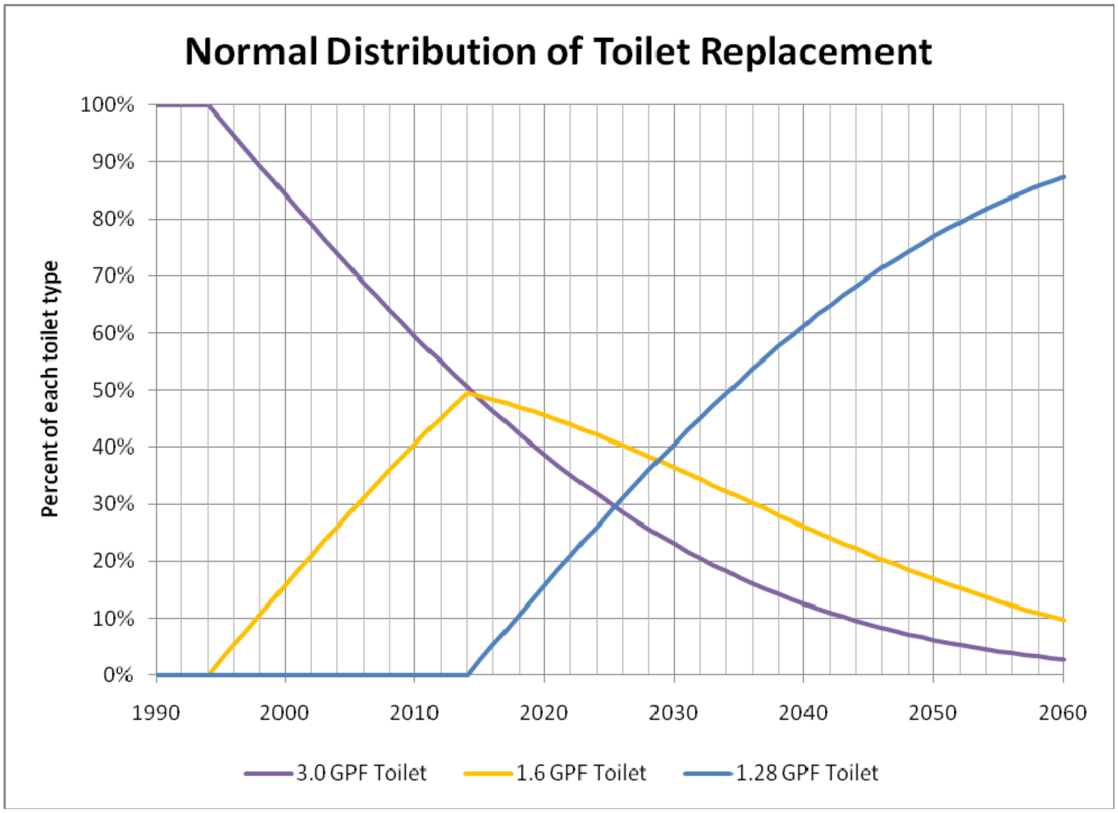
2.4 *Reliability*

The projected water savings should be realized without action by the WUG. Therefore, the reliability of the potential water savings is relatively high.

2.5 *Opinion of Probable Cost*

The projected water savings should be realized at no cost to the WUGs.

Figure 2.1



3.0 FEDERAL RESIDENTIAL CLOTHES WASHER STANDARDS

3.1 *Applicability*

Potential savings from federal residential clothes washer standards were evaluated for all municipal WUGs.

3.2 *Potential Water Savings*

For a given WUG, the projected water savings associated with federal residential clothes washer standards is the projected difference in the number of efficient clothes washers with and without the federal standards multiplied by the number of people per single-family housing unit multiplied by the projected per capita savings. The number of people per single-family housing unit was obtained from 2000 Census data, and the projected per capita savings is 5.6 gpcd(3,4).

The life of a residential clothes washer is approximately 13 years(3). The assumed natural replacement rate is normally distributed (one-sided) with standard deviation equal to the clothes washer life, mean equal to the implementation date, and independent variable equal to the planning year.

3.3 *Additional Data Requirements*

No additional data are necessary to project savings from federal residential clothes washer standards.

3.4 *Reliability*

The projected water savings should be realized without action by the WUG. Therefore, the reliability of the potential water savings is relatively high.

3.5 *Opinion of Probable Cost*

The projected water savings should be realized at no cost to the WUGs.

4.0 PUBLIC AND SCHOOL EDUCATION

4.1. *Applicability*

The public and school education program strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd,
- Projected water need,
- Identified sponsor for the public and school education program

4.2 *Projected Water Savings*

Water savings from public and school education are difficult to measure. Public and school education results in indirect savings through enhancement of other water conservation measures and direct savings from changes in customer behavior. In this memorandum, the indirect savings from public education will be attributed to the other water conservation strategies with which they are associated. Therefore, the potential water savings from public and school education will be the direct savings from changes in customer behavior. The projected water savings in a given decade is estimated to be from 1.3 to 3.9 percent of municipal water demand, with savings increasing each decade over the planning period according to Table 2.1. WUGs that implement this program by 2010 are projected to achieve 3.9 percent savings by 2060.

Table 2.1: Projected Percentage Savings by Decade for Public and School Education

2010	2020	2030	2040	2050	2060
1.3%	2.1%	2.5%	3.0%	3.5%	3.9%

It is assumed that the savings from public and school education last one year[4] and that the program must be renewed each year to maintain and increase the estimated savings.

4.3 *Additional Data Requirements*

No additional data are needed to project water savings from public and school education.

4.4 *Reliability*

Water savings from public and school education are difficult to measure and depend on customer behavior. For these reasons, the reliability of the estimated water savings is low. Public and school education reinforces and builds on previously delivered conservation messages; therefore, it is important that the public and school education program be continued from year to year in order to enhance the reliability of the savings.

4.5 *Opinion of Probable Cost*

Previous planning efforts have budgeted between $0.50 and $0.75 per resident per year for public and school education(2). The projected savings of 1.3.0 to 3.9 percent of municipal water use is relatively aggressive compared to other planning efforts, justifying a greater level of spending in Region C. The City of Dallas currently spends approximately $1.00 per resident per year on public and school education. On a per capita basis, it is anticipated that smaller cities would have to spend up to $3.00 per resident per year to deliver effective water conservation messages.

The opinion of probable annual cost for each WUG to which this measure applies was derived using population projections. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

5.0 IMPACT OF INCREASING WATER PRICES

5.1 *Applicability*

The impact of increasing water prices was evaluated for all municipal WUGs.

5.2 *Potential Water Savings*

The change in water demand from increases in water prices is called the price elasticity of water demand. A price elasticity of -0.20 indicates that a 1.00 percent increase in water rates will cause a -0.20 percent decrease in water usage. Estimation of potential water savings from the price elasticity of water demand requires projection of future treated water prices.

Unfortunately, historical price elasticities depend upon economic and other conditions that may not persist in the future, and no projections of future price elasticities were identified. Therefore, a long-term price elasticity of -0.20 is recommended for projecting the impact of increasing water prices in Region C. It has also been assumed that real water prices will increase by 20 percent over the planning period and that half of the potential impact of increasing water prices will be offset by increasing income.

The projected water savings for each WUG is one half of the long-term price elasticity multiplied by the change in real water price multiplied by the municipal water demand. It was assumed that real water prices will increase linearly during planning period, for a total 20 percent increase by 2060 (Table 5.2). By the end of the planning period, increasing water prices are projected to cause a 2 percent reduction in total water demand.

Table 5.1: Projected Real Water Price Increases During Planning Period

2010	2020	2030	2040	2050	2060
0%	4%	8%	12%	16%	20%

5.3 *Additional Data Requirements and Reliability*

Customer participation is highly reliable for this strategy, since changes in water prices automatically affect all water customers. However, the projected water savings are based on broad, general assumptions, and the reliability of the above projections is low.

The reliability of the above projections could be increased if detailed projections of real treated water prices and real income were available. This would require projections of raw water costs, treatment costs, distribution costs, and administrative costs for each WUG.

5.4 *Opinion of Probable Cost*

The projected water savings should be realized at no cost to the WUGs.

6.0 WATER SYSTEM AUDIT, LEAK DETECTION AND REPAIR, AND PRESSURE CONTROL

6.1 *Applicability*

HB 3338, passed by the 78th Texas Legislature, requires water system audits for retail public utilities. In addition, the feasibility of the system water audit, pressure control, and leak detection strategy was evaluated for publicly-owned municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd,
- Total unaccounted-for water (UFW) in excess of the target level.
- Projected water need, and
- Identified sponsor for this strategy.

6.2 *Potential Water Savings*

For a given WUG, the projected water savings associated with the water system audit, leak detection and repair, and pressure control strategy is the difference between the WUG's actual UFW and the target UFW multiplied by the municipal water demand multiplied by an implementation schedule percentage. The target UFW is 12 percent for most WUGs and 18 percent for WUGs with widespread, rural systems. It has been assumed this strategy will be 33 percent complete by the first decade of implementation and 100 percent by the second decade of implementation. The program should be continued indefinitely to maintain the target UFW.

No water savings were projected for WUGs that have not reported their UFW.

6.3 *Additional Data Requirements*

Available utility profiles have been reviewed for WUGs, and several inconsistencies with the way that WUGs report data have reduced the reliability of the reported data. In different sections, the utility profile switches between units of one thousand gallons and units of gallons, leading to some confusion in reporting: the reported quantities did not always appear to have the stated units. It is not always clear whether the reported quantities include wholesale water volumes in addition to retail water volumes. The utility profile form requests monthly water diverted (or treated) but some WUGs reported monthly water sales instead. It is not always clear whether multi-family residential water use is included in the residential category or the commercial category. The utility profile form requests "water loss," but defines it as the difference between water diverted (or treated) and water sold. In reality, this definition applies to "nonrevenue water," which includes water loss and unbilled authorized consumption. It is not always clear whether utilities reported water loss or nonrevenue water. Some WUGs reported one or more years where the water sold was greater than the water diverted (or treated). Some WUGs also reported total water diverted (or treated) differently on the same profile where this information is requested. Future reporting forms should attempt to address these areas of potential confusion.

6.4 *Reliability*

The projected water savings are based on reported UFW data, which increases the reliability of the estimates. However, UFW as a percentage of total produced and/or purchased water can vary widely from year to year, even if the total system water loss does not change. Therefore, the reliability of the potential water savings is medium.

6.5 *Opinion of Probable Cost*

The cost for a system water audit is highly variable and depends on the size of the water system and the degree of uncertainty present in the estimated losses. The opinion of probable cost for a "desktop" audit, conducted by assembling readily available data and estimating losses for which data are not available, may range from $5,000 to $50,000. The opinion of probable cost for an "intensive" audit, where field investigations are conducted to generate additional data with which to refine the desktop audit, may range from $50,000 to $500,000 or more. It has been assumed that WUGs will implement the desktop audit.

In addition, a typical cost for leak detection and repair is $400 per mile of main per year(2). Using estimates of the number of miles per main for different populations, an opinion of the probable annual cost for leak detection and repair was generated.

For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

7.0 WATER CONSERVATION PRICING STRUCTURE

7.1 *Applicability*

The water conservation pricing structure strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd,
- Projected water need,
- No water conservation pricing structure, and
- Identified sponsor for the water conservation pricing structure.

7.2 *Potential Water Savings*

The projected water savings for each WUG is a percentage of municipal water demand multiplied by an implementation schedule percentage. Selection of water conservation pricing structures is a highly WUG-specific task requiring a separate rate study. For purposes of projecting conservation savings, it was assumed that implementation of a water conservation pricing structure would save 1.5 percent of total water demand for each municipal WUG. No savings were projected if the current water pricing structure is unknown.

The assumed implementation schedule percentages are 50 percent in the first decade of implementation and 100 percent by the second decade of implementation.

7.3 *Additional Data Requirements*

The current water pricing structure is known for WUGs that comprise 86 percent of 2060 municipal water demand. For a complete estimate of potential water savings, it is necessary to identify the existing water pricing structure for the remaining WUGs.

7.4 *Reliability*

Customer participation is highly reliable for this strategy, since changes to the pricing structure automatically affect all water customers. However, it is not possible to predict the water conservation pricing structure that each WUG would adopt, so the reliability of the savings estimate is low.

7.5 *Opinion of Probable Cost*

It has been assumed that the probable cost to pass an ordinance in a city of up to 25,000 people is $5,000 and that the cost to pass an ordinance in a city of more than 50,000 people is $10,000. To obtain an opinion of probable annual costs, probable capital costs were amortized at a 6 percent interest rate for a term of 20 years. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

8.0 WATER WASTE PROHIBITION

8.1 *Applicability*

The water waste prohibition strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd.
- Projected water need.
- No water waste prohibition.
- Identified sponsor to implement a water waste prohibition strategy.

Some WUGs are unable to implement this strategy, because they lack ordinance-making authority.

8.2 *Potential Water Savings*

The projected water savings for each WUG is the product of the following parameters:

- Potential water savings
- Municipal water demand
- Percent seasonal water demand
- Percent automatic irrigation
- Compliance rate
- Implementation schedule percentage

The projected savings are based on use of rain sensors that shut off automatic irrigation systems when it is raining or when it has rained recently (depending on the type of sensor). It is estimated that the percentage of watering cycles missed during a drought year is approximately equal to the minimum annual percentage of days with ½-inch rainfall events. The projected water savings from an irrigation water waste prohibition strategy is 3.3 percent of irrigation water use for accounts that have automatic irrigation systems(2).

The percentage of customers that have automatic irrigation systems varies considerably across the region and is unknown in most cases. In the July 2004 RCWPG survey, 52 out of 129 total responses provided an estimate of the percentage of customers that have automatic irrigation systems.

It is anticipated that it will take ten years of implementation to realize full compliance with the water waste prohibition. However, anecdotal evidence indicates that there is some fraction of rain sensors that will be out of order. Therefore, "full compliance" is projected to be 90 percent participation.

The estimated potential water savings has been based on a requirement for rain sensors for automatic irrigation systems. As discussed previously, a water waste prohibition may address numerous other sources of waste, but it is not possible to predict what the ordinance for an individual WUG might prohibit. The potential water savings from other sources of water waste have not been estimated.

It is anticipated that the customer will replace the rain sensor at the end of its useful life at his or her own expense to maintain compliance with the water waste prohibition and that the projected water savings will be permanent.

8.3 *Additional Data Requirements*

The status of whether a WUG has implemented a water waste prohibition is known for WUGs that comprise 71 percent of 2060 municipal water demand. Additional information is necessary to project water savings for the remainder of the WUGs.

In addition, the percentage of customer accounts that have automatic irrigation systems is unknown for most WUGs. Additional data would improve the reliability of the assumptions stated in Section 8.2.

8.4 *Reliability*

For an individual automatic irrigation system with a rain sensor in working order, the reliability of the potential water savings should be high. However, for an entire WUG to realize its projected savings, there must be enforcement of the water waste prohibition to ensure that the projected number of rain sensors are installed, and automatic irrigation system owners must keep the rain sensor in working order. In addition, there are uncertainties associated with the estimates of the market penetration of automatic irrigation systems. Due to uncertainties described above, the reliability of the projected savings is medium.

8.5 *Opinion of Probable Cost*

The primary costs for this measure include adoption of an ordinance and enforcement of the ordinance similar to Section 7. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

9.0 COIN-OP CLOTHES WASHER REBATE

9.1 *Applicability*

The coin-op clothes washer rebate strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd.
- Projected water need.
- No coin-op clothes washer rebate strategy.
- Identified sponsor to implement a coin-op clothes washer rebate strategy.

9.2 *Potential Water Savings*

In a given year, the projected water savings for a WUG is the sum of savings from multi-family coin-op clothes washer rebates and Laundromat coin-op clothes washer rebates.

The projected savings from multi-family coin-op clothes washer rebates is the product of the following parameters:

- Number of active multi-family rebates
- Multi-family clothes washer density
- Multi-family population density
- Projected per capita savings
- Percentage of rebates not given to freeriders

Detailed assumptions for water savings are documented in the *2006 Region C Water Plan* Appendix M [(2)] and have not changed during this planning period.

9.3 *Additional Data Requirements*

No additional data are required to project potential water savings.

9.4 *Reliability*

The per capita savings should be highly reliable because the savings are based on changes in clothes washer design. However, due to significant uncertainty in the final market penetration, the overall reliability of the savings estimate is low to medium.

9.5 *Opinion of Probable Cost*

The opinion of probable cost for a single rebate is $208, including the rebate, marketing, and overhead. Detailed assumptions for water savings are documented in the *2006 Region C Water Plan* Appendix M [2] and have not changed during this planning period.

10.0 RESIDENTIAL CUSTOMER WATER AUDIT

10.1 *Applicability*

The residential customer water audit strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd.
- Projected water need.
- No residential customer water audit strategy.
- Identified sponsor to implement a residential customer water audit strategy.

10.2 *Potential Water Savings*

A residential customer water audit involves both indoor and outdoor aspects. It is assumed that the auditor will replace showerheads and faucet aerators if they are high-flow devices and will replace toilet flappers if a leaking toilet flapper is discovered during the audit. In addition, the auditor will inspect the irrigation system and its operation and offer suggestions on how to irrigate more efficiently. Audits may result in changed customer behavior.

10.2.1 Indoor Savings

Based on the natural replacement rate and measure life projected for the showerheads and aerators, it is likely that many of the audited customers will already have low-flow showerheads and aerators, even if customers with pre-1995 housing are targeted for the audits. In addition, any savings from replacement of showerheads and faucet aerators would be short-lived because such savings would eventually be realized through natural replacement. No savings have been projected from replacement of showerheads and faucet aerators. In addition, the savings amount from changed behavior is difficult to quantify and has not been estimated.

Detailed assumptions for water savings are documented in the *2006 Region C Water Plan* Appendix M [2] and have not changed during this planning period.

In the absence of a residential customer water audit program, the initial market penetration is zero percent. It is assumed that approximately 20 percent of contacted customers will agree to an indoor water audit. If the WUG targets that the top 25 percent of residential water users for customer water audits (both indoor and irrigation), then a reasonable final market penetration is 5 percent of all residential customers (20 percent of top 25 percent). Coupled with the measure life of 5 years, this indicates a participation rate of 1 percent of customers per year.

10.2.1 Outdoor Savings

The potential outdoor water savings is approximately 10 percent of irrigation water use for audited single-family customers and 15 percent of irrigation water use for audited multi-family customers. In addition, since high-use customers are targeted for residential customer water audits, it is assumed that these customers will use twice as much water for irrigation as the average customer.

After the initial five-year implementation period, the residential customer water audit program must be continued indefinitely to maintain the projected final market penetration.

10.3 *Additional Data Requirements*

No additional data are required to project the potential water savings from the residential customer water audit program.

10.4 *Reliability*

Although replacement of a leaking toilet flapper repairs the initial leak, the replacement flapper may eventually develop a leak as well. There is also significant uncertainty in the following factors:

- Flapper leakage rate,
- Percentage of leaking toilets for each WUG,
- Savings from the irrigation portion of the audit,
- Customer participation rate,
- Final market penetration, and
- Measure life.

Therefore, the reliability of the potential water savings from residential customer water audits is low.

10.5 *Opinion of Probable Cost*

The opinion of probable cost for a single audit is $102, including the labor, marketing, materials, and overhead. The cost for a single audit is amortized at 6 percent interest over 5 years, the expected life of the measure. The opinion of probable annual cost is the sum of amortized costs for all audits conducted in the previous 5 years. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

11.0 ICI WATER AUDIT, WATER WASTE REDUCTION, AND SITE-SPECIFIC CONSERVATION PROGRAM

11.1 *Applicability*

The ICI water audit, water waste reduction, and site-specific conservation program strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd.
- Projected water need.
- No ICI water audit, water waste reduction, and site-specific conservation program.
- Identified sponsor to implement an ICI water audit, water waste reduction, and site-specific conservation program.

11.2 *Potential Water Savings*

Typical literature values for the potential water savings from an ICI water audit, water waste reduction, and site-specific water conservation program range from 10 to 40 percent of total water usage for audited ICI customers [(2)]. It is projected that the potential savings from this strategy will be 15 percent of total water usage for audited customers that implement the water conservation measures identified in the audit.

It is anticipated that the ICI water audit, water waste reduction, and site-specific water conservation program will reach 0.5 percent of ICI customers each year for 20 years until the final market penetration of 10 percent of ICI customers is achieved. The 20-year implementation period is designed to match the projected life of the water savings. After the initial implementation period, the program must be continued indefinitely to maintain the projected final market penetration.

11.3 *Additional Data Requirements*

Data regarding the amount of ICI water use was not available for every WUG. For WUGs that have not reported their ICI water use, no potential estimate of savings was made.

11.4 *Reliability*

The effectiveness of this strategy depends on the degree of participation of ICI customers. In addition, there is significant variability in literature values for potential water savings. Therefore, the reliability of the potential water savings for the ICI water audit, water waste reduction, and site-specific water conservation program is low.

11.5 *Opinion of Probable Cost*

The opinion of probable cost for each audit is $575. The cost for a single audit is amortized at 6 percent interest over 20 years, the expected life of the measure. The opinion of probable annual cost is the sum of amortized costs for all rebates given in the previous 20 years. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

12.0 LANDSCAPE IRRIGATION RESTRICTIONS

12.1 *Applicability*

The landscape irrigation restriction program strategy was evaluated for municipal WUGs with the following characteristics:

- Existing or projected total water usage of more than 140 gpcd,
- Projected water need,
- Ability for WUG to create and enforce ordinances,
- Not currently implementing the irrigation restriction program, and
- Identified sponsor for the irrigation restriction program

12.2 *Potential Water Savings*

Irrigation restriction ordinances have been passed for a number of WUGs in Region C, although in varying forms. Some ordinances specify time of day restrictions (no automatic irrigation watering from 10am through 6pm) throughout the year, while some choose warmer months (only implementing from April through October). The exact times allowed throughout a day also vary across the Region. Almost all still allow hand irrigating regardless of time of day or year.

Water savings were estimated at 2.5% of seasonal water demands for each applicable WUG. Seasonal water demands are calculated as the difference between peak summer month usage and winter usage, which is attributable largely to landscape irrigation, although cooling water usage and other factors may also be attributable.

12.3 *Additional Data Requirements*

Additional WUG surveys would help refine the number and type of ordinances currently enforced. True estimates of savings are hard to quantify but could be advanced through comparison of WUGs with similar characteristics (climate, size, seasonal usage) that do and do not have ordinances enforced.

12.4 *Reliability*

Customer participation is related to knowledge of ordinance and ordinance enforcement, which varies by WUG. It is also not possible to predict the exact landscape irrigation restrictions that each WUG would adopt. Finally, amounts of water used in irrigation are dependent on weather patterns which cannot be predicted throughout the planning periods. Due to these unknowns the reliability of the savings estimate is low.

12.5 *Opinion of Probable Cost*

The primary costs for this measure include adoption of an ordinance and enforcement of the ordinance similar to Section 7. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

13.0 MANUFACTURING GENERAL REBATE PROGRAM

13.1 *Applicability*

The manufacturing general rebate program strategy was evaluated for manufacturing WUGs that have a projected water need.

13.2 *Potential Water Savings*

It has been assumed that where the strategy is implemented, the potential water savings for the manufacturing general rebate program is three percent of water sales from a municipal WUG to a manufacturing WUG and that the potential water savings will last for 15 years. These assumptions are consistent with the assumption in the TWDB-sponsored study of conservation potential in Texas[10].

It is anticipated that water savings will be realized at a rate of 0.2 percent per year for 15 years until the full 3 percent of total manufacturing water usage is realized. The 15-year implementation period is designed to match the projected life of the water savings. After the initial implementation period, the manufacturing general rebate program must be continued indefinitely to maintain the projected water savings.

It has also been assumed that the program will be implemented beginning in 2020.

13.3 *Additional Data Requirements*

No additional data are required to estimate potential water savings from a manufacturing general rebate program.

13.4 *Reliability*

The effectiveness of this strategy depends on the degree of participation of manufacturing customers. In addition, the estimate of potential water savings is not based on WUG-specific data. Therefore, the reliability of the potential water savings for the manufacturing general rebate program is low.

13.5 *Opinion of Probable Cost*

The opinion of probable cost for rebates is $2.30 per gallon per day of savings, including the rebate, marketing, and overhead. The cost for a single rebate is amortized at 6 percent interest over 15 years, the expected life of the measure. The opinion of probable annual cost is the sum of amortized costs for all rebates given in the previous 15 years. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

14.0 GOLF COURSE CONSERVATION PROGRAM

14.1 *Applicability*

The golf course conservation strategy was evaluated for irrigation WUGs that have a projected water need.

14.2 *Potential Water Savings*

It has been assumed that where the strategy is implemented, the potential water savings for the golf course conservation program is 15 percent of golf course water demand and that the potential water savings will last indefinitely (the golf course will continue to maintain and implement the conservation program at its own expense). In addition, it has been assumed that participation rates will be 0 percent in 2010, 40 percent in 2020, 50 percent in 2030, 60 percent in 2040, 70 percent in 2050, and 80 percent in 2060.

14.3 *Additional Data Requirements*

No additional data are required to estimate potential water savings from a golf course conservation program.

14.4 *Reliability*

The effectiveness of this strategy depends on the degree of participation of golf courses. In addition, the estimate of potential water savings is not based on course-specific data. Therefore, the reliability of the potential water savings for the golf course conservation program is low.

14.5 *Opinion of Probable Cost*

Implementation alternatives include voluntary implementation for self-supplied golf courses, rebates for courses supplied by a municipal WUG, and ordinances if supplied by a city. The opinion of probable cost assumes that a municipal WUG offers a rebate to a golf course to implement a conservation program.

The opinion of probable cost for rebates is $2.30 per gallon per day of savings, including the rebate, marketing, and overhead. The cost for a single rebate is amortized at 6 percent interest over 20 years. The opinion of probable annual cost is the sum of amortized costs for all rebates given in the previous 20 years. For a given WUG and given year, the probable unit cost was calculated as the probable annual cost divided by projected water savings.

15.0 REFERENCES

1. Freese and Nichols, Inc., Alan Plummer Associates, Inc., CP&Y, Inc., and Cooksey Communications, Inc.: *2011 Region C Water Plan*, prepared for the Region C Water Planning Group, Fort Worth, April 2010.

2. Freese and Nichols, Inc., Alan Plummer Associates, Inc., Chiang, Patel & Yerby, Inc., and Cooksey Communications, Inc.: *2006 Region C Water Plan*, prepared for the Region C Water Planning Group, Fort Worth, July 2006.

3. GDS Associates, Inc.: *Quantifying the Effectiveness of Various Water Conservation Techniques in Texas*, prepared for the Texas Water Development Board, May 2002.

4. Texas Water Development Board: *Water Conservation Implementation Task Force Water Conservation Best Management Practices Guide*, Report 362, Austin, November 2004.

APPENDIX L
MODEL WATER CONSERVATION PLANS FOR MUNICIPAL AND NON-MUNICIPAL USE

APPENDIX L
MODEL WATER CONSERVATION PLANS FOR MUNICIPAL AND NON-MUNICIPAL USE

Appendix L includes one model municipal and three model non-municipal water conservation plans:

- Model Municipal Water Conservation Plan
- Model Manufacturing Water Conservation Plan
- Model Irrigation Water Conservation Plan
- Model Steam Electric Power Water Conservation Plan

REGION C WATER PLANNING GROUP

MODEL WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN FOR MUNICIPAL WATER USER GROUPS

OCTOBER 2010

Prepared for:

REGION C WATER PLANNING GROUP

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ACKNOWLEDGEMENTS

This model water conservation and drought contingency plan for the fictional City of Poca Agua was prepared by Freese and Nichols, Alan Plummer Associates, and CP&Y for the Region C Water Planning Group. It is a template for municipal water user groups to use as they develop their own water conservation and drought contingency plans. Each municipal water user group should customize the details to match its unique situation. The model plan was prepared pursuant to Texas Commission on Environmental Quality rules. Some material is based on the existing water conservation plans listed in Appendix A. The water conservation and drought contingency plans for the North Texas Municipal Water District[1], the City of Fort Worth[2], and the City of Dallas[3] were used extensively.

Questions regarding this model water conservation and drought contingency plan should be addressed to the following:

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[1] Superscript numbers match references listed in Appendix A.

CITY OF POCA AGUA

WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN

OCTOBER 2010

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Water Conservation and Drought Contingency Plan
October 2010

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development in Region C have led to growing demands for water. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. Therefore, it is important that we make efficient use of existing supplies and make them last as long as possible. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers[4]. The TCEQ guidelines and requirements for water suppliers are included in Appendix B. The City of Poca Agua has adopted this water conservation and drought contingency plan pursuant to TCEQ guidelines and requirements.

The objectives of the water conservation plan are:

- To reduce water consumption.
- To reduce the loss and waste of water.
- To identify the level of water reuse.
- To improve efficiency in the use of water.
- To extend the life of current water supplies by reducing the rate of growth in demand.

The objectives of the drought contingency plan are:

- To conserve the available water supply in times of drought and emergency
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

2.1 Conservation Plans

The TCEQ rules governing development of water conservation plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code, which is included in Appendix B. For the purpose of these rules, a water conservation plan is defined as:

"A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s) [4]."

According to TCEQ rules, water conservation plans for public water suppliers must have a certain minimum content (Section 3), must have additional content for public water suppliers that are projected to supply 5,000 or more people in the next ten years (Section 4), and may have additional optional content (Section 5).

2.2 Drought Contingency Plans

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code, which is included in Appendix B. For the purpose of these rules, a drought contingency plan is defined as:

"A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s) [4]."

The drought contingency plan for the City of Poca Agua is contained in Section 6 of this water conservation and drought contingency plan.

3. MINIMUM REQUIRED WATER CONSERVATION PLAN CONTENT

The minimum requirements in the Texas Administrative Code for water conservation plans for public drinking water suppliers covered in this report are as follows:

- §288.2(a)(1)(A) – Utility Profile – Section 3.1 and Appendix C
- §288.2(a)(1)(B) – Specification of Goals Before May 1, 2005 – Section 3.2
- §288.2(a)(1)(C) – Specification of Goals After May 1, 2005 – Section 3.2
- §288.2(a)(1)(D) – Accurate Metering – Sections 3.3 and 3.4
- §288.2(a)(1)(E) – Universal Metering – Section 3.4
- §288.2(a)(1)(F) – Determination and Control of Unaccounted Water – Section 3.5
- §288.2(a)(1)(G) – Public Education and Information Program – Section 3.6
- §288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 3.7
- §288.2(a)(1)(I) – Reservoir System Operation Plan – Section 3.8
- §288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 3.9, Appendix D, and Appendix E
- §288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 3.10 and Appendix F

3.1 Utility Profile

[The utility profile must include information regarding population and customer data, water use data, water supply system data, and wastewater system data.]

Appendix C to this water conservation plan is a water utility profile for the City of Poca Agua, based on the format recommended by the TCEQ[5]. Table 3.1 summarizes key facts from the Water Utility Profile.

3.2 Specification of Water Conservation Goals

[This section must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in gallons per capita per day.]

Table 3.2 shows historical and projected per capita municipal water use for the City of Poca Agua. Water use is shown in units of gallons per capita per day (gpcd). Municipal water use is total use less wholesale sales to other municipal suppliers less sales to industrial users. Per capita municipal water use is municipal water use divided by population. The per capita municipal water use does not include industrial use.

Projected per capita municipal uses were obtained from the Texas Water Development Board (TWDB)[6] and interpolated to match the appropriate years for the 5-year and 10-year goals. The TWDB projections are applicable for a dry year, in which outdoor water use would be high. Per capita municipal water use in a year with normal or high precipitation during the summer should be less than projected here.

Table 3.1 Summary of Water Utility Profile for the City of Poca Agua

Water Service Area = ____ square miles

Miles of Distribution Pipe = ____ miles

Population:

Current Population = _______ in _____
2000 Population = _________
Projected 2060 Population = __________

Connections:

Current Connections = ______ in ____
Total Increase in Connections in Last 5 Years = ___________

Information on Water Use for the Last Five Years:

Year	Use (Million gallons)	Estimated Population*	Municipal per Capita	Unaccounted Water	Peak Day to Average Day
____	_________	________	_____________	________	
____	_________	________	_____________	________	
____	_________	________	_____________	________	
____	_________	________	_____________	________	
____	_________	________	_____________	________	

*Source of population estimate is ______________________________.

Water Supply Source(s) = Poca Agua Reservoir

Treatment and Distribution System:

Treatment Plant Capacity = _____ million gallons per day
Elevated storage = _____ million gallons
Ground storage = ____ million gallons

Current Total Annual Wastewater Flow = ____ million gallons in _________.

The TWDB projections include the impact of low-flow plumbing fixtures and water conservation measures that have been in effect since at least 2000 but do not include the effect of water conservation measures recommended in this plan. The impact of low-flow plumbing fixtures has been itemized to show the total amount of projected water conservation in the City of Poca Agua. Table 3.2 shows the projected per capita water use after implementation of this water conservation and drought contingency plan. Table 3.2 also shows how much of the projected per capita water use is supplied by reclaimed water.

Table 3.2

Projected Per Capita Use Without Implementation of Water Conservation Measures Beyond Those in Effect in 2000 and Water Conservation Goals

Description	**Highest Historical**		**Five-Year Goal**	**Ten-Year Goal**
	Year	**Gpcd**	**Gpcd**	**Gpcd**
Historical Per Capita Municipal Use			-	-
Projected Per Capita Municipal Use Without Low-Flow Plumbing Fixtures	-	-		
Projected Reduction Due to Low-Flow Plumbing Fixtures	-	-		
Projected Per Capita Municipal Use With Low-Flow Plumbing Fixtures[5]	-	-		
Projected Reduction Due to Water Conservation Measures in this Plan	-	-		
Projected Per Capita Water Use Goals	-	-		
Projected Per Capita Use of Reclaimed Water	-	-		
Projected Per Capita Use of Raw Water	-	-		

The City's water conservation goals include the following:

- Achieve ____ *[five years from date of plan]* per capita municipal water use of ___ gpcd or less, as shown in Table 3.2 (five-year target). This represents a reduction of ___ gpcd from the TWDB's projected per capita municipal water use without low-flow plumbing fixtures or other conservation measures.
- Achieve ____ *[ten years from date of plan]* per capita municipal water use of ___ gpcd or less, as shown in Table 3.2 (ten-year target). This represents a reduction of ___ gpcd from the TWDB's projected per capita municipal water use without low-flow plumbing fixtures or other conservation measures.
- Implement and maintain a meter replacement program (Section 3.4).
- Keep the level of unaccounted water in the system less than __ percent in ___ *[target year]* and subsequent years (Section 3.5). *[For most urban and suburban water user groups, the goal should be between 10 and 15 percent. For some rural water user groups with long distances between customers, the goal should be between 10 and 20 percent.]*
- Raise public awareness of water conservation and encourage responsible public behavior through a public education and information program, as discussed in Section 3.6.

[Note that water conservation goals below this point are based on optional water conservation plan content. Customize this section to represent the measures that you are planning to implement.

- *Decrease waste in lawn irrigation through implementation and enforcement of a landscape water management ordinance (Section 5.4).*
- *Decrease indoor water use by implementing the following programs:*
    - *Showerhead and aerator retrofit program (Section 5.2.1)*
    - *Water-efficient toilet replacement program (Section 5.2.2)*
    - *Residential customer water audit (Section 5.6)*
    - *Water-efficient clothes washer rebate program (Section 5.7).*
- *Decrease outdoor water use by implementing the following programs:*
    - *Residential customer water audit (Section 5.6)*
    - *Landscape irrigation systems rebate program (Section 5.9)*
    - *Landscape design and conversion program (Section 5.10)*

- *Decrease industrial, commercial, and institutional (ICI) water use by implementing the following programs:*
    - *General ICI rebate (Section 5.11)*
    - *ICI water audit, water waste reduction program, and site-specific water conservation program (Section 5.12)]*

3.3 Accurate Metering of Raw Water Supplies and Treated Water Deliveries

[This section must include a description of metering device(s) with an accuracy of plus or minus 5 percent that are used to measure and account for the amount of water diverted from the source of supply.]

The City of Poca Agua meters all raw water diversions from Poca Agua Reservoir and meters all treated water deliveries to the distribution system from the water treatment plant. Each meter has an accuracy of plus or minus 2 percent. The meters are calibrated on a semiannual basis by City of Poca Agua personnel to maintain the required accuracy and are repaired and/or replaced as needed.

3.4 Metering of Customer and Public Uses and Meter Testing, Repair, and Replacement

[This section must include a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.]

Water usage for all customers of the City of Poca Agua, including public and governmental users, is metered. *[If there are unmetered users , describe the current metering situation and outline any plans to achieve universal metering.]*

As part of this water conservation plan, the City of Poca Agua will implement a meter replacement program that will replace every meter on a 15-year cycle. Initial efforts will focus on the oldest meters in the system.

In addition, meters registering any unusual or questionable readings will be tested and repaired to restore full functionality.

3.5 Determination and Control of Unaccounted Water

[This section must include measures to determine and control unaccounted uses of water. In 2003, the Texas Water Code (Chapter 16.0121) was amended to require that every five years, a retail public utility that provides potable water shall perform and file with the TWDB a water

audit computing the utility's most recent annual system water loss. The audit shall account for the various components of system water loss, including loss from distribution lines, inaccuracies in meters or accounting practices, and theft. At this time, the TWDB is developing the rules for water system audits.]

Unaccounted water is the difference between raw water drawn from Poca Agua Reservoir and metered deliveries to customers. (This includes authorized but unmetered uses such as fire fighting and releases for flushing of lines.) Unaccounted water can include several categories:

- Inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use).
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to illegal connections.
- Other.

The City of Poca Agua will conduct an annual water audit using the American Water Works Association (AWW) / International Water Association (IWA) format. The AWWA/IWA format divides water losses into apparent losses and real losses. Apparent water losses include water that was actually used but not accounted for, such as customer meter errors or theft. Accounting for apparent losses increases the city's utility revenue but does not reduce water usage. Real losses include leakage and overflows at the water treatment plant. Identifying and preventing real losses decreases a utility's costs and decreases water usage. The City will target real losses under this water conservation strategy.

[Note that the annual water audit discussed above exceeds the requirement for a water system audit every five years. For a public water supplier that has not been performing water system audits, it may be helpful to perform annual audits for the first few years and to refine different parts of the audit each year.

As an example, the first year audit might involve gathering all available data and estimating quantities that have not been measured. Between the first and second year audits, the supplier might investigate distribution system leaks to refine and reduce the estimated leakage in the second year audit. Between the second and third audits, the supplier could investigate apparent losses, such as meter or accounting errors, to refine and reduce the estimated apparent losses in the third year audit. The actual implementation of this strategy may be different for different suppliers.

In addition, although the IWA format is discussed above, the TWDB has not yet published rules that identify the required audit format.]

As shown in Appendix C, unaccounted water for the City of Poca Agua has varied from ___ percent to ___ percent in the last five years. With the measures described in this plan, the City of Poca Agua intends to maintain the unaccounted water below ___ percent in ____ *[target year]* and subsequent years. If unaccounted water exceeds this goal, the City of Poca Agua will implement a more intensive audit to determine the source(s) of water loss and reduce the unaccounted water.

3.6 Continuing Public Education and Information Campaign

[This section must include a program of continuing public education and information regarding water conservation.]

The continuing public education and information campaign on water conservation for the City of Poca Agua includes the following elements:

- Promote the City's water conservation measures (presented in Sections 3, 4, and 5).
- Include inserts on water conservation with water bills at least twice per year. Inserts will include material developed by City of Poca Agua staff and material obtained from the TWDB, the TCEQ, and other sources.
- Encourage local media coverage of water conservation issues and the importance of water conservation.
- Notify local organizations, schools, and civic groups that City of Poca Agua staff is available to make presentations on the importance of water conservation and ways to save water.
- Make the *Texas Smartscape CD*, water conservation brochures, and other water conservation materials available to the public at the City of Poca Agua Utility Department and other public places.
- Make information on water conservation available online at www.ci.pocaagua.tx.us and will include links to the *Texas Smartscape* website and to information on water conservation on the TWDB and TCEQ web sites.

3.7 Non-Promotional Water Rate Structure

[This section must include a water rate structure that is not "promotional," i.e., a rate structure which is cost-based and which does not encourage excessive use of water.]

With the intent of encouraging water conservation and discouraging waste and excessive use of water, the City of Poca Agua has adopted an increasing block rate water structure where the unit price of water increases with increasing water use. Current water rates are shown in Tables 7.1 and 7.2.

Table 3.3

Monthly Customer Charges

Meter Size (in)	Total Charge	Meter Size (in)	Total Charge
5/8	$___	2	$___
3/4	$___	3	$___
1	$___	4	$___
1 1/4	$___	6	$___
1 1/2	$___		

Table 3.4

Volume Unit Charges

Water User	Type/Volume	Volume Unit Charge ($/1,000 gal)
Single-Family	0-2,000 gallons	$___
	2,001-9,000 gallons	$___
	9,001-15,000 gallons	$___
	More than 15,000 gallons	$___
Multi-Family		$___
Commercial		$___
Large Volume/Industrial		$___
Golf Courses		$___

[An increasing block rate structure, where the unit cost increases as water usage increases, is recommended. The price difference between blocks is very important in influencing water usage. Prices between blocks should increase at least 25 percent; for maximum effectiveness, consider a price increase between blocks of at least 50 percent[7]. Also consider peak and off-peak rates for non-residential uses to encourage water conservation.]

3.8 Reservoir System Operation Plan

[This section must include a reservoir system operation plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies. Attach a copy of the reservoir system operation plan if available.]

The City of Poca Agua has the following rights to divert water from Poca Agua Reservoir:

- Up to 8,000 ac-ft/yr based on the natural yield of the reservoir
- Up to 2,000 ac-ft/yr based on the reclaimed water discharge from the City's North Wastewater Treatment Plant

Poca Agua Reservoir is not operated in coordination with any other raw water supply sources; therefore, no additional yield can be gained through system operation.

3.9 Implementation and Enforcement of the Water Conservation Plan

[This section must include a means of implementation and enforcement of the plan. This shall be evidenced by a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier and a description of the authority by which the water supplier will implement and enforce the conservation plan.]

Appendix D contains a copy of the resolution of the City of Poca Agua City Council adopting this water conservation and drought contingency plan. The resolution designates responsible officials to implement and enforce the water conservation and drought contingency plan. Appendix E, the landscape water management ordinance for the City of Poca Agua, also includes information about enforcement.

3.10 Coordination with Regional Water Planning Group

[This section must include documentation of coordination with the Regional Water Planning Group(s) for the service area of the public water supplier in order to insure consistency with the appropriate approved regional water plan(s).]

Appendix F includes a copy of a letter sent to the Chair of the Region C Water Planning Group with this water conservation and drought contingency plan.

4. ADDITIONAL REQUIRED WATER CONSERVATION PLAN CONTENT

[Section 4 does not apply if you are not projected to supply a population of 5,000 people or more in the next ten years.]

The Texas Administrative Code also includes additional requirements for water conservation plans for public drinking water suppliers that serve a population of 5,000 people or more and/or a projected population of 5,000 people or more within the next ten years:

- §288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections 3.5 and 4.1
- §288.2(a)(2)(B) – Record Management System – Section 4.2
- §288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers – Section 4.3

4.1 Leak Detection and Repair; Pressure Control

[If you are projected to supply 5,000 people or more in the next ten years, this section must include a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water. Water loss accounting is also discussed in Sections 3.5 and 5.5.]

Measures to control unaccounted water are part of the routine operations of the City of Poca Agua. Meter readers watch for and report signs of illegal connections so they can be addressed quickly. Crews and personnel look for and report evidence of leaks in the water distribution system. Maintenance crews respond quickly to repair leaks reported by the public and city personnel. The City of Poca Agua spends $_____ per year to repair and replace water distribution lines and uses ___ *[number]* distribution line maintenance crews. Areas of the water distribution system in which numerous leaks and line breaks occur are targeted for replacement as funds are available.

To reduce real water losses, the City of Poca Agua will maintain a proactive water loss program. As part of this program, the City will implement the following actions:

[No actions have been specified here. Customize this section to fit your situation. Potential actions include[8]:

- *Conduct regular inspections and soundings of all water main fittings and connections;*
- *Use a leakage modeling program;*
- *Meter individual pressure zones;*
- *Establish district metering areas and measure monthly flows;*
- *Conduct intermittent night-flow measurements;*
- *Install temporary leak noise detectors and loggers;*
- *Reduce repair time on leaks by adding repair staff;*
- *Control pressure to just above the minimum standard-of-service level including fire requirements;*
- *Operate pressure zones based on topography;*
- *Limit surges in pressure; and*
- *Reduce nighttime pressure where feasible to reduce losses from background leaks.]*

4.2 Record Management System

[If you are projected to supply 5,000 people or more in the next ten years, this section must include a record management system to record water pumped, water deliveries, water sales, and water losses which allows for the desegregation of water sales and uses into residential, commercial, public and institutional, and industrial user classes.

If you are required to have such a record management system and you do not, please describe your plan to meet this requirement within the next five years.]

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the record management system for the City of Poca Agua records water pumped, water delivered, and water sold; estimates water losses; and allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information will be included in an annual conservation report, as described in Section 5.5 below.

4.3 Requirement for Water Conservation Plans by Wholesale Customers

[If you are projected to supply 5,000 people or more in the next ten years, this section must include a requirement that every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in TAC Title 30, Part 1, Chapter 288. If the customer intends to resell

the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of TAC Title 30, Part 1, Chapter 288.]

At this time, the City of Poca Agua is not a wholesale water provider. After adoption of this plan, each contract for the wholesale sale of water by the City of Poca Agua will include a requirement that the wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code. This requirement will also extend to each successive wholesale customer in the resale of the water.

5. OPTIONAL WATER CONSERVATION PLAN CONTENT

[Any combination of the following optional strategies shall be selected by the water supplier, in addition to the requirements of Section 3 and Section 4, if they are necessary to achieve the stated water conservation goals of the plan.]

TCEQ rules also list optional (not required) conservation strategies, which may be adopted by suppliers to achieve the stated goals of the plan. The following optional strategies are listed in the rules and included in this plan:

- §288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 3.7
- §288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 5.1
- §288.2(a)(3)(C) – Programs for the Replacement or Retrofit of Water-Conserving Plumbing Fixtures in Existing Structures – Section 5.2
- §288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 5.3
- §288.2(a)(3)(E) – Pressure Control and/or Reduction – Section 4.1
- §288.2(a)(3)(F) – Landscape Water Management Ordinance – Section 5.4 and Appendix E
- §288.2(a)(3)(G) – Monitoring Method – Section 5.5 and Appendix G
- §288.2(a)(3)(H) – Other Conservation Methods – Sections 5.6 through 5.11
- §288.2(b) – Water Conservation Plan Updates – Section 5.12

[The final optional water conservation strategy listed in the TCEQ rules is "any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan." Several more optional conservation methods have been listed below to assist you in conservation planning.]

In addition, the City of Poca Agua will also pursue the following optional water conservation strategies that exceed those suggested in the rules:

- Residential Customer Water Audit – Section 5.6
- Water-Efficient Clothes Washer Rebate Program – Section 5.7
- Landscape Irrigation System Rebate Program – Section 5.8
- Landscape Design and Conversion Program – Section 5.9

- General ICI Rebate Program – Section 5.10
- ICI Water Audit, Water Waste Reduction Program, and Site-Specific Water Conservation Program – Section 5.11

5.1 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures

[OPTIONAL STRATEGY: If you have a plumbing ordinance that requires water-conserving fixtures, please describe the ordinance here and include a copy in an appendix.]

The State of Texas has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are also required under federal law. These state and federal standards assure that all new construction and renovations in the City of Poca Agua will use water-conserving fixtures.

In addition, federal rules requiring energy-conserving clothes washers by 2007 are expected to assure that new clothes washers in the City of Poca Agua will be water-efficient.

5.2 Programs for the Replacement or Retrofit of Water-Conserving Plumbing Fixtures in Existing Structures

[OPTIONAL STRATEGY: If you are planning programs to implement the replacement or retrofit of water-conservation plumbing fixtures in existing structure, please describe these programs below. Such programs might include distribution of free fixtures, vouchers for discounted fixtures, rebates on fixtures, etc.]

5.2.1 Showerhead and Faucet Aerator Retrofit Program

As discussed previously, state and federal plumbing standards require water-efficient plumbing fixtures for new construction and remodel projects. However, there are still a significant number of water-inefficient plumbing fixtures in use in the City of Poca Agua. Under this program, the City will provide free retrofit kits to City residents for their installation. High quality, low flow plumbing devices to be distributed under this program include: showerheads (2.0 gpm or less), kitchen faucet aerators (2.2 gpm or less), and bathroom faucet aerators (1.5 gpm or less). The showerhead and faucet aerator retrofit program is targeted toward single- and multi-family homes constructed before 1992 that have not been retrofitted with water-efficient plumbing fixtures.

The projected reduction in per capita use from a showerhead and faucet aerator retrofit program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.2.2 Water-Efficient Toilet Replacement Program

As discussed previously, state and federal plumbing standards require water-efficient toilets for new construction and remodel projects. However, there are still a significant number of water-inefficient toilets in use in the City of Poca Agua. Under this program, the City will provide free water-efficient toilets (1.6 gallons per flush) to City residents, along with a $____ rebate for installation. The City of Poca Agua is targeting single- and multi-family residential customers with homes constructed before 1992 that have not been retrofitted with water-efficient toilets.

The projected reduction in per capita use from the water-efficient toilet replacement program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.3 Reuse and Recycling of Wastewater

[OPTIONAL STRATEGY: If you are planning to reuse or recycle wastewater, please describe this program below.]

The City of Poca Agua operates two wastewater treatment plants: the North Wastewater Treatment Plant (WWTP) and the South WWTP. The North WWTP discharges approximately 2,000 ac-ft/yr of reclaimed water to Poca Agua Creek upstream of Poca Agua Reservoir, where it is mixed with ambient water. Based on its water right, the City of Poca Agua withdraws up to 2,000 ac-ft/yr of this reclaimed water from Poca Agua Reservoir for water treatment and potable use. This reuse project provides approximately 20 percent of the City's total water supply.

The South WWTP discharges approximately 3,000 ac-ft/yr of reclaimed water to Poca Agua Creek downstream of Poca Agua Reservoir. Reclaimed water discharged from the South WWTP is used to satisfy downstream water rights and to maintain instream flows.

5.4 Water Waste Prohibition

[OPTIONAL STRATEGY: If you have an ordinance that prohibits water waste, please describe the ordinance below and attach a copy of the ordinance.]

As part of the development of this water conservation plan, the City of Poca Agua adopted a landscape water management ordinance (Appendix E). This ordinance is intended to minimize waste in landscape irrigation. The ordinance[8] includes the following elements:

- Prohibition of outdoor watering with sprinklers from 10:00 a.m. to 6:00 p.m. every day from June 1 through September 30.*[Optional -Year round 10:00 a.m. to 6:00 p.m. prohibition of outdoor watering]* (Watering with hand-held hoses, soaker hoses, or dispensers is allowed.)
- Requirement that all new irrigation systems include rain sensors capable of multiple programming.
- Requirement that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Part 1, Chapter 344 and House Bill 1656).
- Prohibition of designs and installations that spray directly onto impervious surfaces such as sidewalks and roads or onto other non-irrigated areas.
- Prohibition of use of poorly maintained sprinkler systems that waste water.
- Prohibition of outdoor watering during any form of precipitation.
- Enforcement of the ordinance by a system of warnings followed by fines for continued or repeat violations.

5.5 Monitoring of Effectiveness and Efficiency - Annual Conservation Report

[OPTIONAL STRATEGY: If you are planning to monitor the effectiveness and efficiency of the water conservation plan, please describe how you will do so.]

Appendix G is a form that will be used in the development of an annual conservation report for the City of Poca Agua. This form will be developed by March 31 for the preceeding calendar year and will be used by the City of Poca Agua to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and unaccounted water for the current year and compares them to historical values.

[The remainder of Section 5 includes "other" optional water conservation strategies that are not specifically enumerated in the TCEQ rules.]

5.6 Residential Customer Water Audit

[OPTIONAL STRATEGY: If you are planning a program to provide audits of residential water use, please describe the program below.]

The City of Poca Agua will conduct water audits for single- and multi-family residential customers. The four main purposes are: to educate customers about conservative water use habits and replacement of inefficient toilets, clothes washers, and dishwashers; to install water-efficient showerheads and faucet aerators; and to identify (and possibly repair) leaks; and to optimize irrigation water usage. The City's auditor will review the current watering schedule and recommend any appropriate changes to the watering schedule, will inspect the system operation, and will recommend any equipment repairs or changes to increase the efficiency of the irrigation system.

The projected reduction in per capita use from the customer indoor water audit program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.7 Water-Efficient Clothes Washer Rebate Program

[OPTIONAL STRATEGY: If you are planning a program to encourage the use of water-efficient clothes washers, please describe the program below. Such programs generally include rebates on the purchase of water-efficient clothes washers. In addition, since water-efficient clothes washers are also energy efficient, water utilities can sometimes partner with energy providers in offering rebates.]

New, high-efficiency clothes washers use up to 40 percent less water than older, traditional clothes washers. Under this program, the City of Poca Agua will provide a $_____ rebate toward the purchase of residential clothes washers with a water efficiency factor (gallons per load divided by tub size in cubic feet) of 9.5 or less. In addition, the City of Poca Agua will provide a $_____ rebate toward the purchase of commercial clothes washers with a water efficiency factor (gallons per load divided by tub size in cubic feet) of 9.5 or less.

The projected reduction in per capita use from the water-efficient clothes washer rebate program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.8 Landscape Irrigation System Rebate Program

[OPTIONAL STRATEGY: If you are planning a program to encourage the use of water-efficient landscape irrigation equipment, please describe the program below.]

The City of Poca Agua will offer a rebate to residential and industrial, commercial, and institutional (ICI) customers to improve the efficiency of their existing irrigation system. By improving the efficiency of irrigation system, outdoor water usage can be reduced while maintaining a healthy landscape. Irrigation system equipment that could qualify for a rebate includes: irrigation controllers that allow percentages of programmed amounts for use with evapotranspiration-based water budgets, low-precipitation-rate sprinkler heads, drip irrigation equipment, pressure regulators, soil moisture sensors, and rain sensors.

The City of Poca Agua will offer the following rebates, with a total not to exceed $____:

- $____ rebate on a new evapotranspiration-based irrigation controller
- $____ rebate on a pressure reducing valve
- $____ rebate on a rain shut-off device
- Other equipment such as sprinkler heads and valves are eligible.

The projected reduction in per capita use from the landscape irrigation system rebate program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.9 Landscape Design and Conversion Program

[OPTIONAL STRATEGY: If you are planning a program to encourage the use of water-wise landscaping, please describe the program below.]

The City of Poca Agua will provide a rebate of $____ per square foot (up to 800 square feet) to residential and ICI customers that convert existing high-water-use landscaping to water wise landscaping. In addition, the City of Poca Agua encourages new construction to follow water wise landscaping principles on all or part of the property.

The seven principles of water wise landscaping include:

- Planning and design,
- Soil analysis and improvement,
- Appropriate plant selection,
- Practical turf areas,

- Efficient irrigation,
- Use of mulches, and
- Appropriate maintenance.

Customers must agree to refund the rebate to the City if water use does not decline after installation of water wise landscaping or if water use returns to previous levels within five years.

The projected reduction in per capita use from the landscape design and conversion program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.10 General ICI Rebate Program

[OPTIONAL STRATEGY: If you are planning a general rebate program to encourage ICI water conservation, please describe the program below.]

The City of Poca Agua will encourage its industrial, commercial, and institutional (ICI) customers to convert to water-saving equipment and practices by rebating a portion of the acquisition and installation cost of new water-saving equipment. Examples of equipment changes that might be eligible for a rebate are:

- Replacement of single-pass cooling systems with recirculating or air-cooling systems.
- Reuse of high quality rinse water for landscape irrigation or for wash cycles in laundry equipment.
- Improvements in cleaning processes.
- Installation of water-savings equipment in a car wash.

The City will rebate the lesser of the following:

- Half the purchase price of the equipment (up to $______) or
- $____ for each gallon per day saved up to ______ gallons and then $____ per gallon saved per day for the next ______ gallons up to a maximum rebate of up to $______.

The projected reduction in per capita use from the general ICI rebate program is ___ gpcd in ____ *[five years from date of plan]* and ___ gpcd in ____ *[ten years from date of plan]*.

5.11 **ICI Water Audit, Water Waste Reduction Program, and Site-Specific Water Conservation Program**

[OPTIONAL STRATEGY: If you are planning a program to assist ICI water users in performing on-site water audits, identifying water waste, and developing a site-specific water conservation program, please describe the program below.]

The City of Poca Agua realizes that its ICI customers use water for a wide variety of purposes and have a wide variety of usage patterns. As such, the most feasible water conservation strategies for an individual ICI customer may be highly site-specific. The ICI water audit, water waste reduction program, and site-specific water conservation program is a strategy intended to serve as a way to identify, evaluate, and implement water conservation for individual ICI customers.

With the assistance of the customer, an ICI water audit will:

- Accurately measure all water entering the facility
- Inventory and calculate all on-site water uses
- Identify any unused water sources or waste streams available
- Calculate water related costs
- Identify potential water conservation measures within a facility

Potential water efficiency measures may include water waste reduction and/or best management practices. ICI water-wasting activities may include wasteful irrigation practices and scheduling, single-pass cooling, non-recycling decorative fountains, discharge of process water, inefficient use of water softeners, and wash and rinse processes. In addition to water waste reduction, ICI best management practices may include sub-metering, cooling tower audits, cooling system audits, rinsing/cleaning, boiler and steam systems, water treatment, refrigeration, management and employee programs, landscape, and alternative sources and reuse of process water.

The projected reduction in per capita use from the ICI water audit, water waste reduction program, and site-specific water conservation program is ___ gpcd in _____ *[five years from date of plan]* and ___ gpcd in _____ *[ten years from date of plan]*.

5.12 Water Conservation Plan Updates

As required by TCEQ rules (§288.2(b)), the City of Poca Agua will review this water conservation plan every five years, beginning in _____ *[five years from date of plan]*. The plan will be updated as appropriate based on new or updated information. As the plan is reviewed and subsequently updated, a copy of the revised Drought Contingency Plan will be submitted to the TCEQ and the RCWPG for their records.

6. DROUGHT CONTINGENCY PLAN

6.1 Introduction

The purpose of this drought contingency plan is as follows:

- To conserve the available water supply in times of drought and emergency
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.

6.2 State Requirements for Drought Contingency Plans

This drought contingency plan is consistent with Texas Commission on Environmental Quality (TCEQ) guidelines and requirements for the development of drought contingency plans by public drinking water suppliers, contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code. This rule is included in Appendix B.

TCEQ's minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 6.3
- 288.20(a)(1)(B) – Provisions for Continuing Public Education and Information – Section 6.4
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 6.9
- 288.20(a)(1)(D) – Criteria for Initiation and Termination of Drought Stages – Section 6.6
- 288.20(a)(1)(E) – Drought and Emergency Response Stages – Section 6.6
- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions – Section 6.6
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage – Section 6.6
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Drought Stages – Section 6.5
- 288.20(a)(1)(I) - Procedures for Granting Variances – Section 6.7

- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 6.8
- 288.20(a)(3) – Consultation with Wholesale Supplier – Not applicable
- 288.20(b) – Notification of Implementation of Mandatory Measures – Section 6.5
- 288.20(c) – Review and Update of Plan – Section 6.10

[If you receive water from a wholesale supplier, you must include in your plan appropriate provisions for responding to reductions in the wholesale water supply.]

6.3 Provisions to Inform the Public and Opportunity for Public Input

The City of Poca Agua provided opportunity for public input in the development of this drought contingency plan by the following means:

- Providing written notice of the proposed plan and the opportunity to comment on the plan by newspaper, posted notice, and notice on City of Poca Agua's web site, www.ci.pocaagua.tx.us.
- Making the draft plan available on City of Poca Agua's web site, www.ci.pocaagua.tx.us.
- Providing the draft plan to anyone requesting a copy.
- Holding a public meeting at the City of Poca Agua City Hall at ______ *[time]* on ________________ *[date]*.

6.4 Provisions for Continuing Public Education and Information

The City of Poca Agua will inform and educate the public about its drought contingency plan by the following means:

- Preparing a bulletin describing the plan and making it available at city hall and other appropriate locations.
- Making the plan to the public available through the City of Poca Agua web site at www.ci.pocaagua.tx.us.
- Including information about the drought contingency plan on the City of Poca Agua's web site, www.ci.pocaagua.tx.us.
- Notifying local organizations, schools, and civic groups that City of Poca Agua staff members are available to make presentations on the drought contingency plan (usually in conjunction with presentations on water conservation programs).

At any time that the drought contingency plan is activated or the drought stage changes, the City of Poca Agua will notify local media of the issues, the drought response stage, and the specific actions required of the public. The information will also be publicized on the City of Poca Agua web site, www.ci.pocaagua.tx.us. Billing inserts will also be used as appropriate.

6.5 Initiation and Termination of Drought Response Stages

6.5.1 Initiation of Drought Response Stages

The Utility Director or his/her official designee may order the implementation of a drought response stage or water emergency when one or more of the trigger conditions for that stage is met. The following actions will be taken when a drought stage is initiated:

- The public will be notified through local media.
- Wholesale customers (none at present) will be notified by telephone with a follow-up letter or fax.
- If any mandatory provisions of the drought contingency plan are activated, the City of Poca Agua will notify the Executive Director of the TCEQ within 5 business days.

For other trigger conditions, the Utility Director or his/her designee may decide not to order the implementation of a drought response stage or water emergency even though one or more of the trigger criteria for the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs.

6.5.2 Termination of Drought Response Stages

The Utility Director or official designee may order the termination of a drought response stage or water emergency when the conditions for termination are met or at his/her discretion. The following actions will be taken when a drought stage is terminated:

- The public will be notified through local media.
- Wholesale customers will be notified by telephone with a follow-up letter or fax.

- When any mandatory provisions of the drought contingency plan that have been activated are terminated, the City of Poca Agua will notify the Executive Director of the TCEQ within 5 business days.

The Utility Director or his/her designee may decide not to order the termination of a drought response stage or water emergency even though the conditions for termination of the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the drought stage.

6.6 Drought and Emergency Response Stages

6.6.1 Stage 1, Mild

6.6.1.1 TRIGGERING AND TERMINATION CONDITIONS FOR STAGE 1, MILD

- The water level in Poca Agua Reservoir has fallen below elevation 484.0 feet msl.
- Demand exceeds 90% of the amount that can be delivered to customers for seven consecutive days.
- Water demand for all or part of the delivery system approaches delivery capacity because delivery capacity is inadequate.
- Supply source becomes contaminated.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Water demand is approaching the limit of the permitted supply.

[The following are examples of other potential triggering criteria that may be used in one or more successive stages of a drought contingency plan. Select one or more of these if appropriate to your system, or devise additional triggering criteria tailored to your system[9]:

1. *Annually, beginning on May 1 through September 30.*
2. *When the water supply available to the City of Poca Agua is equal to or less than ______ (acre-feet, percentage of storage, etc.).*
3. *When, pursuant to requirements specified in the (name of water supplier) wholesale water purchase contract with (name of wholesale*

water supplier), notification is received requesting initiation of Stage 1 of the Drought Contingency Plan.

4. *When flows in the (name of stream or river) are equal to or less than ____ cubic feet per second.*
5. *When the static water level in the (name of water supplier) well(s) is equal to or less than ____ feet above mean sea level.*
6. *When the specific capacity of the (name of water supplier) well(s) is equal to or less than ___ percent of the well's original specific capacity.*
7. *When total daily water demand equals or exceeds ____ million gallons for ___ consecutive days or ____ million gallons on a single day (e.g., based on the "safe" operating capacity of water supply facilities).*
8. *Continually falling treated water reservoir levels which do not refill above ___ percent overnight (e.g., based on an evaluation of minimum treated water storage required to avoid system outage).]*

Stage 1 can be terminated when the water level in Poca Agua Reservoir rises above 488.0 feet msl or when the circumstances that caused the initiation of Stage 1 no longer prevail.

6.6.1.2 Goal for Use Reductions and Actions Available under Stage 1, Mild

The goal for water use reduction under Stage 1, Mild, is a ____ percent reduction of the use that would have occurred in the absence of drought contingency measures. The purpose of actions under State 1, Mild is to raise public awareness of potential drought problems. The Utility Director or his/her designee can order the implementation of any of the actions listed below, as deemed necessary:

- Request voluntary reductions in water use by the public and by wholesale customers.
- Increase public education efforts on ways to reduce water use.
- Review the problems that caused the initiation of Stage 1.
- Notify major water users and work with them to achieve voluntary water use reductions.
- Intensify efforts on leak detection and repair.
- Reduce non-essential city government water use. (Examples include street cleaning, vehicle washing, operation of ornamental fountains, etc.)

- Reduce city government water use for landscape irrigation.
- Ask the public to follow voluntary landscape watering schedules.
- Notify wholesale customers of actions being taken in the City of Poca Agua and request implementation of similar procedures.

6.6.2 Stage 2, Moderate

6.6.2.1 Triggering Conditions for Stage 2, Moderate

- The water level in Poca Agua Reservoir has fallen below elevation 481.0 feet msl.
- Demand exceeds 95% of the amount that can be delivered to customers for 3 consecutive days.
- Water demand for all or part of the delivery system equals delivery capacity because delivery capacity is inadequate.
- Supply source becomes contaminated.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Water demand is approaching the limit of the permitted supply.

[If applicable select one or more of the additional triggering criteria discussed in Section 10.6.1.1, or devise additional triggering criteria tailored to your system.]

Stage 2 can terminate when the water level in Poca Agua Reservoir rises above elevation 485.0 feet msl or when the circumstances that caused the initiation of Stage 2 no longer prevail. Stage 1 becomes operative on termination of Stage 2.

6.6.2.2 Goal for Use Reduction and Actions Available under Stage 2, Moderate

The goal for water use reduction under Stage 2, Moderate, is a ____ percent reduction of the use that would have occurred in the absence of drought contingency measures. The Utility Director or his/her designee can order the implementation of any of the actions listed below, as deemed necessary:

- Continue or initiate any actions available under Stage 1.
- Initiate engineering studies to evaluate alternatives should conditions worsen.
- Further accelerate public education efforts on ways to reduce water use.

- Halt non-essential city government water use. (Examples include street cleaning, vehicle washing, operation of ornamental fountains, etc.)
- Encourage the public to wait until the current drought or emergency situation has passed before establishing new landscaping.
- Notify wholesale customers of actions being taken in the City of Poca Agua and request them to implement similar procedures.

6.6.3 Stage 3, Severe

6.6.3.1 Triggering Conditions for Stage 3, Severe

- The water level in Poca Agua Reservoir has fallen below elevation 478.0 feet msl.
- Demand exceeds 98% of the amount that can be delivered to customers for 3 consecutive days.
- Water demand for all or part of the delivery system exceeds delivery capacity because delivery capacity is inadequate.
- Supply source becomes contaminated.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Water demand is approaching the limit of the permitted supply.

[If applicable select one or more of the additional triggering criteria discussed in Section 10.6.1.1, or devise additional triggering criteria tailored to your system.]

Stage 3 can terminate when the water level in Poca Agua Reservoir rises above elevation 482.0 feet msl or when the circumstances that caused the initiation of Stage 3 no longer prevail. Stage 2 becomes operative on termination of Stage 3.

6.6.3.2 Goal for Use Reduction and Actions Available under Stage 3, Severe

The goal for water use reduction under Stage 3, Severe, is a reduction of ____ percent of the use that would have occurred in the absence of drought contingency measures. If the circumstances warrant, the Utility Director or his/her designee can set a goal for greater water use reduction.

The Utility Director or his/her designee can order the implementation of any of the actions listed below, as deemed necessary. Measures described as "requires notification to TCEQ" impose mandatory requirements on retail and wholesale customers. The City of Poca Agua staff must notify TCEQ within five business days if these measures are implemented.

- Continue or initiate any actions available under Stages 1 and 2.
- Implement viable alternative water supply strategies.
- **Requires Notification to TCEQ –** Initiate mandatory water use restrictions as follows:
  - Prohibit hosing of paved areas, buildings, or windows.
  - Prohibit operation of ornamental fountains.
  - Prohibit washing or rinsing of vehicles by hose.
  - Prohibit using water in such a manner as to allow runoff or other waste.
- **Requires Notification to TCEQ –** Limit landscape watering at each service address to once every five days based on the last digit of the address. (Exceptions: Foundations, azaleas, new plantings (first year) of trees and shrubs may be watered for up to 2 hours on any day by a hand-held hose or a soaker hose. Golf courses may water greens and tee boxes without restrictions. Restrictions do not apply to locations using treated wastewater effluent for irrigation.)
- **Requires Notification to TCEQ** – Prohibit draining and filling of existing pools and filling of new pools. (Pools may add water to replace losses during normal use.)
- **Requires Notification to TCEQ –** Prohibit establishment of new landscaping.
- Initiate a 10% rate surcharge for all water use over 4,000 gallons per connection per month.
- Discontinue city government water use for landscape irrigation, except as needed to prevent foundation damage, keep golf course greens and tee boxes alive, and preserve new plantings.
- Notify wholesale customers of actions being taken in the City of Poca Agua and request them to implement similar procedures.

6.6.4 Stage 4, Emergency

6.6.4.1 TRIGGERING CONDITIONS FOR STAGE 4, EMERGENCY

- The water level in Poca Agua Reservoir has fallen below elevation 475.0 feet msl.

- Demand exceeds the amount that can be delivered to customers.
- Water demand for all or part of the delivery system seriously exceeds delivery capacity because the delivery capacity is inadequate.
- Supply source becomes contaminated.
- Water supply system unable to deliver water due to the failure or damage of major water system components.
- Water demand is approaching the limit of the permitted supply.

[If applicable select one or more of the additional triggering criteria discussed in Section 10.6.1.1, or devise additional triggering criteria tailored to your system.]

Stage 4 can terminate when the water level in Poca Agua Reservoir rises above elevation 479.0 feet msl or when the circumstances that caused the initiation of Stage 4 no longer prevail. Stage 3 becomes operative on termination of Stage 4.

6.6.4.2 Goal for Use Reduction and Actions Available under Stage 4, Emergency

The goal for water use reduction under Stage 4, Emergency, is a reduction of ____ percent of the use that would have occurred in the absence of drought contingency measures. If circumstances warrant, the Utility Director or his/her designee can set a goal for greater water use reduction.

The Utility Director or his/her designee can order the implementation of any of the actions listed below, as deemed necessary. Measures described as "requires notification to TCEQ" impose mandatory requirements on retail and wholesale customers. The City of Poca Agua staff must notify TCEQ within five business days if these measures are implemented.

- Continue or initiate any actions available under Stages 1, 2, and 3.
- Implement viable alternative water supply strategies.
- **Requires Notification to TCEQ –** Prohibit washing of vehicles except as necessary for health, sanitation, or safety reasons
- **Requires Notification to TCEQ –** Prohibit commercial and residential landscape watering, except that foundations may be watered for 2 hours each day with a hand-held hose or a soaker hose.
- **Requires Notification to TCEQ –** Prohibit golf course watering except for greens and tee boxes.

- **Requires Notification to TCEQ –** Prohibit any filling of private pools. Commercial and public pools may refill to replace losses during normal use.
- **Requires Notification to TCEQ –** Require all commercial water users to reduce water use by a percentage established by the Utility Director or his/her designee.
- Initiate a 25% rate surcharge over normal rates for all water use over 4,000 gallons per month.
- Notify wholesale customers of actions being taken in the City of Poca Agua and request them to implement similar procedures.

6.7 Procedure for Granting Variances to the Plan

The Utility Director or his/her designee may grant temporary variances for existing water uses otherwise prohibited under this drought contingency plan if one or more of the following conditions is met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person requesting the variance.
- Compliance with this plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances shall be granted or denied at the discretion of City of Poca Agua staff or his/her designee. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioner(s)
- Purpose of water use
- Specific provisions from which relief is requested
- Detailed statement of the adverse effect of the provision from which relief is requested
- Description of the relief requested
- Period of time for which the variance is sought
- Alternative measures that will be taken to reduce water use

- Other pertinent information.

6.8 Procedure for Enforcement of Mandatory Restrictions

Mandatory water use restrictions may be imposed in Stage 3 and Stage 4 drought stages. These mandatory water use restrictions will be enforced by warnings and penalties as follows:

- On the first violation, customers will be given a written warning that they have violated the mandatory water use restriction.
- On the second and subsequent violations, citations may be issued to customers, with fines not less than $___ and not to exceed $_____ per incident.
- After two violations have occurred, the City of Poca Agua may install a flow restrictor in the line to limit the amount of water that may pass through the meter in a 24-hour period.
- After three violations have occurred, the City of Poca Agua may cut off water service to the customer.

6.9 Coordination with the Regional Water Planning Group

The City of Poca Agua is located within the Region C water planning area. Appendix F includes a copy of a letter sent to the Chair of the Region C Water Planning Group (RCWPG) with this water conservation and drought contingency plan.

6.10 Review and Update of Drought Contingency Plan

As required by TCEQ rules, the City of Poca Agua will review this drought contingency plan every five years, beginning in _____ *[five years from date of plan]*. The plan will be updated as appropriate based on new or updated information. As the plan is reviewed and subsequently updated, a copy of the revised Drought Contingency Plan will be submitted to the TCEQ and the RCWPG for their records.

REGION C WATER PLANNING GROUP

MODEL WATER CONSERVATION PLAN FOR MANUFACTURING WATER USES

FEBRUARY 2010

Prepared for:

REGION C WATER PLANNING GROUP

Prepared by:

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ACKNOWLEDGEMENTS

This model water conservation plan was prepared by Freese and Nichols, Alan Plummer Associates, and CP&Y for the Region C Water Planning Group. It is intended as a template for manufacturers within Region C as they develop their own water conservation plans. Manufacturers should customize the details to match their unique situation. The model plan was prepared pursuant to Texas Commission on Environmental Quality rules. The rules do not require a drought contingency plan for manufacturers.

The other Region C model water conservation plans (for municipal, steam electric power, and irrigation users) include example text for a fictional water user that can be edited to match a real-life situation. However, there are a large number of manufacturers in Region C with widely varying processes and water uses, and it is difficult to generate example text that is applicable to most manufacturers. This template provides a plan structure and instructions for the type of content that belongs in each section.

Questions regarding this model water conservation plan should be addressed to the following:

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POCA AGUA MANUFACTURING COMPANY

WATER CONSERVATION PLAN

FEBRUARY 2010

Prepared by:

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APPENDIX D	**Board Resolution Adopting this Water Conservation Plan**
APPENDIX E	**Letter to the Region C Water Planning Group**

Poca Agua Manufacturing Company

Water Conservation Plan
February 2010

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development in Region C have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. It is therefore important that we make efficient use of our existing supplies and make them last as long as possible. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation plans for industrial or mining uses (Appendix B). The Poca Agua Manufacturing Company has adopted this water conservation plan pursuant to TCEQ guidelines and requirements.

The objectives of this plan are:

- To reduce water consumption from the level that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- To document the level of recycling and reuse within the manufacturing processes and for non-potable uses.

The plan lists the TCEQ rules; describes the manufacturing process at the Poca Agua Manufacturing Company and associated water uses; sets a water conservation goal; describes water measurement devices and methods; discusses leak detection, repair, and water loss accounting; and reports existing and future water use efficiency practices.

[This model water conservation plan was developed for the Region C Water Planning Group to assist manufacturers in preparing a site-specific water conservation plan. It contains a plan

structure that meets all Texas Commission on Environmental Quality rules for industrial or mining use water conservation plans, along with recommendations on content to include in each section.]

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

The TCEQ rules governing development of water conservation plans for industrial or mining use are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.3 of the Texas Administrative Code (TAC). Applicable TAC rules are presented in Appendix B. A water conservation plan is defined as "A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s)[2]."

Conservation Plan Requirements

The minimum requirements in the TAC Title 30, Part 1, Chapter 288 for water conservation plans for industrial or mining uses are shown below.

TAC Reference	Subject	Plan Location
30 TAC §288.3(a)(1)	Water Use in the Production Process	Section 3
30 TAC §288.3(a)(3)	Water Conservation Goals	Section 4
30 TAC §288.3(a)(4)	Accurate Metering	Section 5
30 TAC §288.3(a)(5)	Leak Detection, Repair, and Water Loss Accounting	Section 6
30 TAC §288.3(a)(6)	Water Use Efficiency Process and/or Equipment Upgrades	Section 7
30 TAC §288.3(a)(7)	Other Conservation Practices	Section 8
30 TAC §288.3(b)	Review and Update of Plan	Section 9

[TCEQ rules do not require a drought contingency plan for industrial or mining water users.]

3. DESCRIPTION OF WATER USE IN THE PRODUCTION PROCESS

[Insert a description of water use in the production process. Show a schematic of the production process with all water use locations and flowrates in Appendix C.

This section must include a description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal.

In typical manufacturing processes, water is used for cooling tower makeup water, steam generation, rinsing, washing, plating and metal finishing baths, conveyance of materials, wet scrubbers, and as an ingredient in products. Typical water sources include potable water purchased from a municipal water supplier, groundwater from wells, raw water diverted from lake or river, captured stormwater runoff, reclaimed wastewater purchased from a wastewater treatment plant, and reclaimed process water.]

4. SPECIFICATION OF WATER CONSERVATION GOALS

The Poca Agua Manufacturing Company has set a five-year goal of reducing water use to ____ ac-ft/yr by _____ *[five years from date of plan]* and a ten-year goal of reducing water use to ____ ac-ft/yr by _____ *[ten years from date of plan]*. These goals will be achieved using the following water conservation methods:

[Edit the water conservation goals and describe how they will be achieved.

This section must include specification of 5-year and 10-year water conservation goals and the basis for development of such goals.

To determine feasible water conservation goals, to provide the basis for these goals, and to identify a schedule for conservation savings, a four-step water conservation implementation process should be completed:

1. *The first step consists of a water audit for the manufacturing facility. A water audit consists of an inventory of all water supplied to the site and all on-site water uses, including the amount of water used for each purpose. A comparison of the water supplied to the water used will reveal the amount of unaccounted-for water. Unaccounted-for water should be no more than 5 percent of total water supplied.*

2. *The second step is to identify sources of water waste and to design procedures to reduce water waste and minimize unaccounted-for water. Water waste reduction measures may include reducing flow to process equipment, installing pressure-reducing valves, installing control or limit switches, or other measures.*

3. *The third step is to identify methods to conserve water use in the manufacturing process, landscape irrigation, and other water uses. Emphasize water conservation methods that address the largest water uses identified in the audit step. Conservation methods could involve upgrading to water-efficient process equipment, water-wise landscaping, retrofit of domestic plumbing fixtures with water-efficient fixtures, employee education, and other methods.*

4. *The fourth step is to identify opportunities to reuse process water. At the end of the process, is the water quality suitable for other uses? Is it economical to provide water treatment to improve the water quality to make it suitable for other uses?*

For each water conservation method, please provide a description of how the method will save water, a schedule for when the method will be implemented, and the projected water savings for each method.]

5. ACCURATE METERING TO MEASURE AND ACCOUNT FOR WATER

One of the key elements in water conservation is careful tracking of water use and control of losses. In order to carefully track and control losses, the Poca Agua Manufacturing Company meters water usage at several locations in the productions process.

[Insert a description of meter locations; meter types; meter calibration frequency; meter calibration tolerance; and meter data collection, tabulation, and storage. Refer to the water use diagram in Appendix C as necessary.]

This section must include a description of the device(s) and/or method(s) within an accuracy of plus or minus five percent to be used to measure and account for the amount of water diverted from the source of supply.

To assist in tracking of water usage, consider installing additional meters at key locations in the manufacturing process, particularly if unaccounted-for water is greater than 5 percent.]

6. LEAK DETECTION, REPAIR, AND WATER LOSS ACCOUNTING

At the Poca Agua Manufacturing Company, plant personnel observe, operate, and maintain facilities throughout the day. Inspection of aboveground piping and pump packing is a normal part of employee duties. In addition, flow meter readings are logged on a daily basis.

If a water leak is indicated by any of the above means, the source of the leak is investigated and a work order for repairs is issued as necessary.

[This section must include a description of leak-detection, repair, and water loss accounting in the water distribution system. Please amend the above description to match operations at your facility.

Consider implementing an active leak detection and repair program if unaccounted-for water is greater than 5 percent.]

7. WATER USE EFFICIENCY PROCESS AND/OR EQUIPMENT UPGRADES

[This section must include a description of equipment and/or process modifications to improve water use efficiency.

It is suggested that you also include a description of existing water-efficient equipment or processes to demonstrate any water conservation savings that is already being achieved.

Equipment upgrades or process modifications should be a result of the third step in the four-step process recommended in Section 4.]

8. OTHER CONSERVATION PRACTICES, METHODS, OR TECHNIQUES

[This section must include any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal(s) of the water conservation plan.

Other sections emphasize process water usage, equipment upgrades, and process modifications. This section should report on proposed conservation practices, methods, or techniques that address other water uses, such as domestic water use, housekeeping water use, and landscape irrigation. Potential conservation methods include retrofit of water-efficient toilets, showerheads, and faucet aerators; water-wise landscaping; employee education; and other methods. Each of these is described below.

The water audit in Section 4 should include a survey of landscape irrigation water use. This includes measurement of the landscape area, measurement of the total irrigable area, irrigation system checks and distribution uniformity analysis, and review or development of irrigation system scheduling. The water use survey should identify currently irrigated areas where irrigation can be discontinued due to low visibility or the plant materials that do not need supplemental irrigation. The survey should also identify areas with the opportunity for process water reuse, stormwater reuse, and reuse of treated effluent for landscape irrigation.

State and federal water efficiency standards require water-efficient plumbing fixtures for new construction and remodeling projects. Replacing older plumbing fixtures with water-efficient plumbing fixtures will conserve water. Other methods include retrofitting toilet tank displacement devices (toilet dam), early closure toilet flappers, and installation of a dual-flush adapter.

An employee education program is important to reducing water waste and conserving water. The manufacturer should inform and educated employees about the adopted water conservation program through inserts in the monthly paychecks, with letters detailing program successes and goals, and through posters and pamphlets posted throughout the facility. Additional educational opportunities exist through employee water conservation seminars and workshops, email, company newsletter, and memos[1].

9. IMPLEMENTATION AND UPDATE OF THE WATER CONSERVATION PLAN

Appendix D contains a copy of the Board of Directors of the Poca Agua Manufacturing Company resolution adopting this water conservation plan. The resolution designates responsible officials to implement and enforce the water conservation plan.

Appendix E contains a copy of a letter to the chairman of the Region C Water Planning Group to inform the planning group of this water conservation plan.

This water conservation plan will be reviewed and updated every five years.

REGION C WATER PLANNING GROUP

MODEL WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN FOR IRRIGATION USERS

FEBRUARY 2010

Prepared for:

REGION C WATER PLANNING GROUP

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ACKNOWLEDGEMENTS

This model water conservation and drought contingency plan for the fictional Poca Agua Golf Club and Turfgrass Nursery was prepared by Alan Plummer Associates, Freese and Nichols, and CP&Y for the Region C Water Planning Group. It is a template for large-scale irrigation water users to use as they develop their own water conservation and drought contingency plans. Each irrigation water user should customize the details to match their unique situation. The model plan was prepared pursuant to Texas Commission on Environmental Quality rules.

Questions regarding this model water conservation and drought contingency plan should be addressed to the following:

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POCA AGUA GOLF CLUB AND TURFGRASS NURSERY

WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN

FEBRUARY 2010

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1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development in Region C have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. It is therefore important that we make efficient use of our existing supplies and make them last as long as possible. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed rules[1] governing the development of water conservation and drought contingency plans for irrigation users (Appendix B). The Poca Agua Golf Club and Turfgrass Nursery has adopted this water conservation and drought contingency plan pursuant to TCEQ rules.

This plan lists the TCEQ rules; describes the irrigation process at the Poca Agua Golf Club and Turfgrass Lawn Nursery; sets water conservation goals; describes water measurement devices and methods; discusses leak detection, repair, and water loss accounting; and reports existing and future water use efficiency practices.

[1] Superscript numbers refer to references in Appendix A.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

2.1 Conservation Plans

The TCEQ rules governing development of water conservation plans for agricultural use (irrigation users) are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.4 of the Texas Administrative Code (TAC), which is included in Appendix B.

A water conservation plan is defined as "A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s)[1]." The minimum requirements plans for agricultural use ("individual irrigation user") are as follows:

TAC Reference	Subject	Plan Location
30 TAC §288.4(a)(2)(A)	Description of Irrigation Production Process	Section 3
30 TAC §288.4(a)(2)(B)	Description of the Irrigation Method or System and Equipment	Section 4
30 TAC §288.4(a)(2)(C)	Accurate Metering	Section 5
30 TAC §288.4(a)(2)(E)	Specification of Conservation Goals After May 1, 2005	Section 6
30 TAC §288.4(a)(2)(F)	Description of Water-Conserving Irrigation Equipment and Application System	Section 7
30 TAC §288.4(a)(2)(G)	Leak Detection, Repair, and Water-Loss Control	Section 8
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30 TAC §288.4(a)(2)(J)	Tailwater Recovery and Reuse	Section 11
30 TAC §288.4(a)(2)(K)	Other Conservation Practices, Methods, or Techniques	Section 12

[The required elements of a water conservation plan are somewhat different for "agricultural users other than irrigation" and a "system providing agricultural water to more than one user." See Appendix B for guidance.]

2.2 Drought Contingency Plans

The TCEQ rules governing development of drought contingency plans for irrigation users are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.21 of the TAC, which is included in Appendix B. For the purpose of these rules, a drought contingency plan is defined as "a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s)[1]." The drought contingency plan for the Poca Agua Golf Club and Turfgrass Nursery is contained in Section 14 of this water conservation and drought contingency plan.

3. DESCRIPTION OF THE IRRIGATION PRODUCTION PROCESS

[This section must include a description of the irrigation production process which shall include, but is not limited to, the type of crops and acreage of each crop to be irrigated, monthly irrigation diversions, any seasonal or annual crop rotation, and soil types of the land to be irrigated. Please amend the description below to match your situation.]

The Poca Agua Golf Club and Turfgrass Nursery, located at 8311 Poca Agua Road in the City of Poca Agua, Texas, is an approximately 450-acre complex owned and operated by Golf Course Associates, Inc. on the western shore of Poca Agua Reservoir. The complex consists of two 18-hole golf courses occupying 400 acres with the remaining 50 acres occupied by a bermudagrass sod operation. Both golf courses were constructed in 1978 with the turfgrass nursery going into production in 1983.

The current irrigation supply sources for the operation are:

- Approximately 550 acre-feet per year (ac-ft/yr) of raw water purchased from the City of Poca Agua. This water is diverted from Poca Agua Reservoir under the City's existing water right and pumped to Eagle Lake, the largest of 5 ponds located on the golf course grounds;
- Three groundwater wells; and
- Treated water purchased from the City of Poca Agua.

The wells and the treated water connection to the City of Poca Agua are for emergency purposes and are not used under normal operating conditions.

3.1 Acreage and Type of Vegetation to be Irrigated

The Poca Agua Golf Club irrigates a total of approximately 300 acres of fairways, rough, tee boxes, greens, and common grounds. The remaining 100 acres is natural and not irrigated. The vegetation located in the fairway, rough, tee boxes, and common grounds consists of a hybrid common bermudagrass with the greens planted in Tifsport 319.

The turfgrass nursery irrigates approximately 45-acres of Tifgrass in production. The remaining 5-acres consists of storage and office buildings and a network of maintenance roads. Tifgrass is a hybrid form of bermudagrass suited for landscape lawn purposes.

Table 3-1 Type of Vegetation and Acreage to be Irrigated

Type of Crop/Plant	Growing Season	Acres Irrigated/Year
1. Common Bermuda	May – October	290
2. Tifsport 319	May – October	10
3. Tifgrass	May – October	45
	Total Number of Acres	345

3.2 Monthly Irrigation Diversions

Raw water is diverted from the Poca Agua Reservoir to Eagle Lake through a 10-inch PVC pipe. A pump station is located along the reservoir and houses a variable speed pump that is capable of delivering 600 gallons per minute at maximum efficiency. A variable speed pump was chosen because of its ability to conserve energy by using only the horsepower required to deliver the required amount of water. The water supplied by the Poca Agua Reservoir to Eagle Lake not only supplements water to the remaining 4 ponds but it provides the primary source of water for irrigation purposes for both golf courses and the turfgrass nursery. The following table details the projected amount of water necessary to maintain 495.0 feet mean sea level in Eagle Lake. During an emergency, the Poca Agua Golf Club and Turfgrass Nursery has the ability to utilize three ground water wells located within the premises and treated water from the City of Poca Agua for irrigation purposes.

Table 3-2 Estimated Monthly Irrigation Diversions from the Supply Source

Month	Acre-Feet
January	0
February	7
March	7
April	21
May	35
June	102
July	103
August	103
September	102
October	35
November	35
December	0
TOTAL	550

3.3 Description of the Soil Type(s)

The Poca Agua Golf Club and Turfgrass Nursery have five different soil types within the 450-acres as determined by the soil survey for Poca Agua County, published by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station. The following table details the soils that can be observed as well as their permeability characteristics.

Table 3-3 Soil Types and Permeability Classification

Soil Type	**Permeability**
Altoga silty clay, 3 to 5 percent slopes	Moderate
Bastrop fine sandy loam, 1 to 3 percent slopes	Moderate
Konsil fine sandy loam, 3 to 8 percent slopes	Moderate
Ovan clay, occasionally flooded	Slow
Wilson clay loam, 1 to 3 percent slopes	Very Slow

4. DESCRIPTION OF THE IRRIGATION METHOD OR SYSTEM AND EQUIPMENT

[This section must include a description of the irrigation method or system and equipment including pumps, flow rates, plans, and/or sketches of the system layout. Please amend the description below to match your situation.]

The Poca Agua Golf Club and Turfgrass Nursery uses a solid set irrigation system with impact sprinkler rotors for both golf courses. The rotors are placed on 60 feet by 80 feet centers and maintain a pressure of 70 psi. The entire system currently operates on a timer configuration with weather patterns monitored. Hand application of water to the greens is used during times of drought.

During normal operations, both golf courses use water that is pumped from Eagle Lake. Under emergency conditions, water is also available from three groundwater wells and through an emergency treated water supply agreement with the City of Poca Agua. Under normal operations, water is pumped from Eagle Lake into the system using a variable speed pump. A variable speed pump is used because of its efficiency and energy savings. Water is distributed to each of the golf courses' lateral lines through a six-inch diameter PVC main line. All of the lateral lines are PVC pipe and range from two to four inches in diameter. Valves, located in valve boxes, distribute water to each zone throughout the golf courses so that pressure is maintained throughout the entire system. An electrically activated solenoid valve is tied to the timer system that engages each zone. The impact sprinkler rotors are pressure-driven once the valve is engaged. All main and lateral lines are buried ten inches or greater to prevent freeze/thawing effects. All sprinkler heads have bleed valves to further prevent damage from freeze/thawing effects.

The turfgrass nursery also uses water from Eagle Lake for irrigation purposes. A variable speed pump pumps water from Eagle Lake to the central valve box. From there, lateral lines distribute the water to a central hose attachment that is attached to a linear move irrigation system. The linear move system distributes the water through a rolling sprinkler apparatus that travels in a straight line over the growing area. The rolling sprinkler apparatus irrigates through an elevated pipe with impact sprinkler rotors attached at 50 feet intervals. The nursery has four growing areas with grasses at various levels of maturity. At each growing area, the irrigation implement operates on a timer. The system maintains a pressure of 70 psi.

A diagram of the irrigation system for the golf courses and the turfgrass nursery is included in Appendix C.

5. ACCURATE METERING

[This section must include a description of the device(s) and/or methods within an accuracy of plus or minus 5.0%, to be used in order to measure and account for the amount of water diverted from the source of supply. Please amend the description below to match your situation.]

The Poca Agua Golf Club and Turfgrass Nursery uses a totalizing meter at the intake structure located along the Poca Agua Reservoir that is calibrated on an annual basis to within two percent accuracy. Meter readings are logged each day and reported to the City of Poca Agua on a monthly basis.

Meters are also present at each groundwater well and at the treated water connection to the City of Poca Agua. These meters are also calibrated annually to within two percent accuracy. Meter readings are logged each day that these water supplies are used.

Within the irrigation process itself, magnetic flow meters measure the following flows:

- Water distributed to the Eagle Golf Course
- Water distributed to the Hills Golf Course
- Water distributed to the Turfgrass Nursery
- Water distributed to the common grounds for irrigation uses

Each of the magnetic flow meters is calibrated on an annual basis to within two percent accuracy. If the meters appear to be malfunctioning, they are repaired or replaced as necessary.

Meter readings from all of the above meters are logged daily and monitored for any water losses. Any future water supply sources will be metered in a similar fashion.

6. SPECIFICATION OF CONSERVATION GOALS

[This section must include specification of 5-year and 10-year targets for water savings, including, where appropriate, quantitative goals for irrigation water use efficiency, and a pollution abatement and prevention plan. Please amend the description below to match your situation.]

This section presents the water conservation goal at the Poca Agua Golf Club and Turfgrass Nursery and describes pollution prevention and abatement.

6.1 Water Conservation Goal

The Poca Agua Golf Club and Turfgrass Nursery has set a five-year water conservation goal of reducing total water usage by 20 percent (from 550 ac-ft/yr to 440 ac-ft/yr) by the year _____ *[five years from date of plan]*. The ten-year goal is the same as the five-year goal. This reduction in water use will be achieved by the following methods:

- Switch to a central, computer-controlled irrigation system with weather monitoring stations located throughout the 450-acre property (golf courses and nursery). This change is projected to save ____ ac-ft/yr.
- Replacement of golf-course sprinkler rotors with more efficient models. This change is projected to save ____ ac-ft/yr.
- Replacement of the linear move irrigation system with a drip/micro-emitter irrigation system. This change is projected to save ____ ac-ft/yr.
- Reduce irrigation to the rough on both golf courses. This change is projected to save ____ ac-ft/yr.

6.2 Pollution Prevention and Abatement

The Poca Agua Golf Club and Turfgrass Nursery is committed to maintaining water quality in its golf course ponds. Potential threats to water quality from golf and turfgrass operations include pesticides, herbicides, and fertilizers. The Golf Club and Nursery minimizes chemical runoff from the golf courses and turfgrass growing areas through the following best management practices:

- Integrated pest management (IPM) approach to controlling pests. This approach includes use of biological pest control agents such as milky spore, bats, and nematodes and limited application of pesticides. When pesticides are applied, only Category III

and IV pesticides (as designated by the U.S. Environmental Protection Agency) are used; these are the least toxic pesticides available.
- Careful limiting of irrigation water application rates.
- Avoiding application of pesticides, herbicides, and fertilizers when rain is in the near-term forecast.
- Use of low-phosporus, slow-release fertilizers that are applied based on soil analysis.
- Vegetative buffers around each golf course pond.
- Furrow diking around turfgrass growing areas to retain runoff on-site.
- 40-foot "no-spray" zones around each water feature.

Other potential pollutant sources during normal operations include parts washing, golf cart and vehicle maintenance, oil and chemical storage, and waste disposal. These potential sources are managed by following all applicable federal, state, and local regulations and through good housekeeping practices. In this way, the Golf Club and Nursery maintains a clean, organized, environmentally responsible maintenance facility.

7. DESCRIPTION OF WATER-CONSERVING IRRIGATION EQUIPMENT AND APPLICATION SYSTEM

[This section must include a description of water-conserving irrigation equipment and application system or method including, but not limited to, surge irrigation, low pressure sprinkler, drip irrigation, and nonleaking pipe. Please amend the description below to match your situation.]

At present, personnel use general information provided by the Texas Agricultural Extension Agency to calculate evapotranspiration rates. With these data, personnel adjust the amount of irrigation applied by reprogramming the timer system. By _____ *[five years from date of plan]*, the current timer system will be upgraded to a centrally-controlled computer system with weather stations placed periodically throughout the 450 acre property. This system is a software-based irrigation control center that will allow for more precision in irrigation management. Weather stations will provide rainfall, high and low ambient temperatures, wind speed and direction, soil temperatures, barometric pressures, relative humidity, and solar radiation data. The control system will analyze data provided by the weather stations and by soil-moisture sensors to estimate the current evapotranspiration rate. Once the evapotranspiration rate is estimated, the system determines an irrigation schedule that will provide only the amount of water needed under existing atmospheric and terrestrial conditions. The system can also shut down irrigation during periods of high wind, rain, or other climatic conditions not favorable to optimal irrigation.

By _____ *[five years from date of plan]*, the Poca Agua Golf Club and Turfgrass Nursery will replace existing impact rotors with higher efficiency rotors from Rain Bird, Inc. These sprinkler heads will apply water more evenly, thereby, reducing water usage.

By _____ *[five years from date of plan]*, the turfgrass nursery will convert from the linear move irrigation system to a micro-emitter irrigation system. The micro-emitter irrigation system will further increase water conservation by reducing the evaporative losses.

8. LEAK DETECTION, REPAIR, AND WATER-LOSS CONTROL

[This section must include a description of leak detection, repair, and water loss control. Please amend the description below to match your situation.]

At the Poca Agua Golf Club and Turfgrass Nursery, leaks are identified through the following means:

- Golf course and turfgrass personnel observe, operate, and maintain facilities throughout the day. Inspection of sprinkler heads, piping, and pump stations are a normal component of employee duties.
- Golf course and turfgrass personnel log and aggregate meter readings into a daily log. Abnormal values may signify a leak from the readings.
- Leak detection equipment is used on occasion if a below-ground leak is suspected.

If a water leak is indicated by any of the above means, the source of the leak is investigated and personnel are instructed to repair the leak as necessary.

9. SCHEDULING THE TIMING AND/OR MEASURING THE AMOUNT OF WATER APPLIED

[This section must include a description of scheduling the timing and/or measuring the amount of water applied (for example, soil moisture monitoring). Please amend the description below to match your situation.]

The Poca Agua Golf Club and Turfgrass Nursery currently uses a timer system and evapotranspiration-based calculations from weather data collected from the Texas Agricultural Experiment Station to obtain an optimal water schedule. However, by _____ *[five years from date of plan]*, the operation will convert to an automated, computer-controlled system. The centrally-controlled system will analyze data obtained from various weather stations and soil moisture sensors located throughout the 450-acre property. The data obtained will consist of rainfall, high or low temperatures, wind speed and direction, soil temperatures, soil moisture, barometric pressure, relative humidity, and solar radiation. From these data, the program will determine an irrigation schedule that will complement the atmospheric and terrestrial conditions to optimize irrigation scheduling.

When possible, irrigation will not be conducted between the hours of 10 AM and 8 PM to minimize evaporative losses. Furthermore, during periods or high wind, rain, or other climatic conditions not favorable to optimal irrigation, the system will shut down.

In addition to the central control system, meters will be monitored to track and record the amount of water being applied through the system.

10. LAND IMPROVEMENTS FOR RETAINING OR REDUCING RUNOFF AND INCREASING THE INFILTRATION OF RAIN AND IRRIGATION WATER

[This section must include a description of any land improvements for retaining or reducing runoff, and increasing the infiltration of rain and irrigation water including, but not limited to, land leveling, furrow diking, terracing, and weed control. Please amend the description below to match your situation.]

The Poca Agua Golf Club maintains 100 acres of natural areas surrounding both golf courses as well as 5 ponds on the golf courses. Each course is sloped to allow all excess water from irrigation or storm events to flow to the natural areas or to the water features, thereby retaining and reducing runoff.

The Poca Agua Turfgrass Nursery uses furrow dikes, which are small earthen dams, to retain irrigation/storm water on-site. In so doing, much of the excess water infiltrates into the soil. Surrounding the turfgrass area is a small drainage channel that discharges collected water back into Eagle Lake, which is the primary irrigation water supply.

11. TAILWATER RECOVERY AND REUSE

[This section must include a description of tailwater recovery and reuse. Please amend the description below to match your situation.]

The Poca Agua Turfgrass Nursery uses uses a small drainage channel to route any excess water from the turfgrass area to Eagle Lake, where it is used/reused for irrigation.

12. OTHER CONSERVATION PRACTICES, METHODS, OR TECHNIQUES

[This section must include information on any other water conservation practice, method, or technique which the user shows to be appropriate for preventing waste and achieving conservation. Please amend the section below to match your situation.]

No other water conservation practices, methods, or techniques are necessary to achieve the water conservation goals for the Poca Agua Golf Club and Turfgrass Nursery.

13. IMPLEMENTATION OF THE WATER CONSERVATION PLAN

Appendix D contains a copy of the resolution of the Board of Directors of the Poca Agua Golf Club and Turfgrass Nursery adopting this water conservation plan. The resolution designates responsible officials to implement and enforce the water conservation plan.

Appendix E contains a copy of a letter to the chairman of the Region C Water Planning Group to inform the group of this water conservation plan.

14. DROUGHT CONTINGENCY PLAN

14.1 Introduction

The purpose of this drought contingency plan is as follows:

- To conserve the available water supply in times of drought and emergency
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.
- To coordinate drought contingency efforts with the City of Poca Agua, the wholesale water supplier for the Poca Agua Golf Club and Turfgrass Nursery.

14.2 State Requirements for Drought Contingency Plans

This drought plan is consistent with Texas Commission on Environmental Quality (TCEQ) guidelines and requirements for the development of drought contingency plans by irrigation users, contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.21 of the Texas Administrative Code. This rule is included in Appendix B.

Minimum Requirements

TCEQ's minimum requirements for drought contingency plans are addressed in the following subsections of this report:

TAC Reference	Subject	Plan Location
30 TAC §288.21(a)(1)(A)	Provisions to Inform the Public and Provide Opportunity for Public Input	Section 14.3
30 TAC §288.21(a)(1)(B)	Document Coordination with Regional Planning Group	Section 14.4
30 TAC §288.21(a)(1)(C)	Criteria for Initiation and Termination of Drought Stages	Section 14.7
30 TAC §288.21(a)(1)(D)	Specific, Quantified Targets for Water Use Reduction	Section 14.7
30 TAC §288.21(a)(1)(E)	Procedures for Determining the Allocation of Irrigation Supplies to Individual Users	Section 14.6
30 TAC §288.21(a)(1)(F)	Procedures for Initiation and Termination of Drought Stages	Section 14.5
30 TAC §288.21(a)(1)(G)	Procedures for Use Accounting	Section 14.8
30 TAC §288.21(a)(1)(H)	Procedures for the Transfer of Water Allocations Among Individual Users	Section 14.9
30 TAC §288.21(a)(1)(I)	Procedures for Enforcement of Water Allocation Policies	Section 14.10
30 TAC §288.21(a)(2)	Consultation with Wholesale Supplier	Section 14.11
30 TAC §288.21(a)(3)	Protection of Public Water Supplies	Section 14.12
30 TAC §288.21(a)(3)(b)	Review and Update of Plan	Section 14.13

14.3 Provisions to Inform the Public and Opportunity for Public Input

The Poca Agua Golf Club and Turfgrass Nursery is a private business that uses water for irrigation. It is not a supplier of irrigation water to any other users. Therefore, it is not obligated to inform the public or provide opportunity for public input.

[If you are a public entity or are otherwise required to inform the public and provide opportunity for public input, alternatives include, but are not limited to:

- *Providing written notice of the proposed plan and the opportunity to comment on the plan by newspaper and posted notice.*
- *Providing the draft plan to anyone requesting a copy.*
- *Holding a public meeting.]*

14.4 Coordination with the Region C Water Planning Group

Appendix E includes a copy of a letter sent to the Chair of the Region C water planning group with a copy of this water conservation and drought contingency plan.

14.5 Initiation and Termination of Drought Response Stages

Initiation of a Drought Response Stage

The City of Poca Agua may order implementation of a drought response stage or water emergency if one or more of the trigger conditions for that stage is met, according to the City's Drought Contingency Plan. When a drought stage is initiated, the City's Utility Director will notify the Poca Agua Golf Club and Turfgrass Nursery by telephone with a follow-up letter or fax.

For other trigger conditions, the City of Poca Agua may decide not to order the implementation of a drought response stage or water emergency even though one or more of the trigger criteria for the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs.

[If you are not subject to a municipal drought contingency plan, include in this section a description of who is authorized to order implementation of drought response stages or water emergencies.]

Termination of a Drought Stage

The City of Poca Agua may order the termination of a drought response stage or water emergency when the conditions for termination are met or at its discretion. When a drought stage is terminated, the City's Utility Director will notify the Poca Agua Golf Club and Turfgrass Nursery by telephone with a follow-up letter or fax.

The City of Poca Agua may decide not to order the termination of a drought response stage or water emergency even though the conditions for termination of the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the drought stage.

[If you are not subject to a municipal drought contingency plan, include in this section a description of who is authorized to terminate drought response stages or water emergencies.]

14.6 Procedures for Determining the Allocation of Irrigation Supplies to Individual Users

The Poca Agua Golf Club and Turfgrass Nursery does not supply water to other water users.

[If you supply irrigation supplies to other users, include in this section a description of the procedure for allocating supplies during drought response stages or water emergencies.]

14.7 Drought and Emergency Response Stages

Upon the implementation of a drought response stage or water emergency, the City of Poca Agua will determine whether to curtail water supply to the Poca Agua Golf Club and Turfgrass Nursery based on the severity of the drought or water emergency and according to the Drought Contingency Plan for the City of Poca Agua. A curtailed allocation would depend on the severity of the drought and/or emergency stage. The following sections of this plan describe the planned response of the Poca Agua Golf Club and Turfgrass Nursery to drought and/or emergency stages as declared by the City of Poca Agua.

[In this example, the irrigator is subject to a municipal drought contingency plan. If you are not subject to a municipal drought contingency plan, please describe what conditions trigger each of the drought response or water emergency stages below and what conditions allow termination of each drought response or water emergency stage.

The following are examples of other potential triggering criteria that may be used in one or more successive stages of a drought contingency plan. Select one or more of these if appropriate to your system, or devise additional triggering criteria tailored to your system[2]:

1. *Annually, beginning on May 1 through September 30.*
2. *When the water supply available to the City of Poca Agua is equal to or less than ______ (acre-feet, percentage of storage, etc.).*
3. *When, pursuant to requirements specified in the (name of water supplier) wholesale water purchase contract with (name of wholesale water supplier), notification is received requesting initiation of Stage 1 of the Drought Contingency Plan.*
4. *When flows in the (name of stream or river) are equal to or less than ____ cubic feet per second.*

5. *When the static water level in the (name of water supplier) well(s) is equal to or less than ____ feet above mean sea level.*
6. *When the specific capacity of the (name of water supplier) well(s) is equal to or less than ___ percent of the well's original specific capacity.*
7. *When total daily water demand equals or exceeds ____ million gallons for ___ consecutive days or ____ million gallons on a single day (e.g., based on the "safe" operating capacity of water supply facilities).*
8. *Continually falling treated water reservoir levels which do not refill above ___ percent overnight (e.g., based on an evaluation of minimum treated water storage required to avoid system outage).]*

14.7.2 Stage 1, Mild

According to the City of Poca Agua Drought Contingency Plan, the stated goal for Stage 1 conditions is to reduce water usage by ___ percent from normal levels, and the emphasis is on public education, voluntary irrigation scheduling, and reducing non-essential water usage.

In Stage 1, the Poca Agua Golf Club and Turfgrass Nursery will voluntarily limit irrigation water usage to the hours of 6 AM to 10 AM and 8 PM to midnight. In addition, watering times for fairway areas will be reduced by ___ percent.

14.7.3 Stage 2, Moderate

According to the City of Poca Agua Drought Contingency Plan, the stated goal for Stage 2 conditions is to reduce water usage by ___ percent from normal levels, and the emphasis is on additional public education and halting non-essential water usage.

In Stage 2, the Poca Agua Golf Club and Turfgrass Nursery will voluntarily limit irrigation water usage to the hours of 6 AM to 10 AM and 8 PM to midnight. Watering times for fairway areas will be reduced to ___ percent of normal watering times, and watering of rough areas will be discontinued. Greens, tee boxes, and turfgrass growing areas will receive normal water amounts.

14.7.4 Stage 3, Severe

According to the City of Poca Agua Drought Contingency Plan, the stated goal for Stage 3 conditions is to reduce water usage by ___ percent from normal levels, and the emphasis is on alternative water supply strategies and mandatory water use restrictions and schedules.

In Stage 3, the Poca Agua Golf Club and Turfgrass Nursery will obtain ___ percent of its irrigation water from the three on-site wells. Irrigation will be limited to the hours of 6 AM to 10 AM and 8 PM to midnight. In addition, watering times for fairway areas will be reduced to ___ percent of normal watering times (watering of rough areas will still be discontinued). Greens, tee boxes, and turfgrass growing areas will receive normal water amounts.

14.7.5 Stage 4, Emergency

According to the City of Poca Agua Drought Contingency Plan, the stated goal for Stage 4 conditions is to reduce water usage by ___ percent from normal levels, and the emphasis is on alternative water supply strategies and mandatory water use prohibitions.

In Stage 4, the Poca Agua Golf Club and Turfgrass Nursery will obtain ___ percent of its irrigation water from the three on-site wells. Irrigation will be limited to the hours of 6 AM to 10 AM and 8 PM to midnight. In addition, watering times for fairway areas will be reduced to ___ percent of normal watering times (watering of rough areas will still be discontinued). Greens, tee boxes, and turfgrass growing areas will receive normal water amounts.

14.8 Procedures for Use Accounting

As discussed in Section 5, metered flows are logged daily, checked for indications of potential leaks, and reported to the City of Poca Agua on a monthly basis. Upon the initiation of a drought or emergency response stage, the Poca Agua Golf Club and Turfgrass Nursery will report withdrawals from Poca Agua Reservoir on a more frequent basis if requested by the City. This reporting will verify that the allocations provided by the initiation of a drought or emergency response stage are being satisfied.

14.9 Procedures for the Transfer of Water Allocations Among Individual Users

The Poca Agua Golf Club and Turfgrass Nursery will not transfer any water allocations to individual users.

14.10 Procedures for Enforcement of Water Allocation Policies

This is section is not applicable, because the Poca Agua Golf Club and Turfgrass Nursery does not allocate water to other users.

14.11 Consultation with Wholesale Supplier

A draft of this plan was sent to Utility Director of the City of Poca Agua for review and comment, and a copy of the final plan will also be provided to the Utility Director.

Upon initiation of a drought or emergency response state, the Poca Agua Golf Club and Turfgrass Nursery will be in direct communication with the Utility Director for the City of Poca Agua or his/her designee.

14.12 Protection of Public Water Supplies

All of the drought contingency measures discussed prior to this section are intended to protect the public water supply in Poca Agua Reservoir. No additional measures are contemplated.

14.13 Review and Update of Drought Contingency Plan

The Poca Agua Golf Club and Turfgrass Nursery will update this drought contingency plan every five years, beginning in _____ *[five years from date of plan]*. The plan will be updated as appropriate based on new information.

As the plans are reviewed and subsequently updated, a copy of the revised Drought Contingency Plan will be submitted to the Region C Water Planning Group for their records.

REGION C WATER PLANNING GROUP

MODEL WATER CONSERVATION PLAN FOR STEAM ELECTRIC POWER GENERATORS

FEBRUARY 2010

Prepared for:

REGION C WATER PLANNING GROUP

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ACKNOWLEDGEMENTS

This model water conservation plan for the fictional Poca Agua Steam Electric Power Station was prepared by Alan Plummer Associates, Freese and Nichols, and CP&Y for the Region C Water Planning Group. It is a template for steam electric power generators to use as they develop their own water conservation plans. Each steam electric power generator should customize the details to match their unique situation. The model plan was prepared pursuant to Texas Commission on Environmental Quality rules. The rules do not require a drought contingency plan for steam electric power generators.

Questions regarding this model water conservation plan should be addressed to the following:

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POCA AGUA STEAM ELECTRIC POWER STATION

WATER CONSERVATION PLAN

FEBRUARY 2010

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Poca Agua Steam Electric Power Station
Water Conservation Plan

February 2010

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development in Region C have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. It is therefore important that we make efficient use of our existing supplies and make them last as long as possible. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed rules governing the development of water conservation plans for industrial and mining water use (Appendix B). The Poca Agua Steam Electric Power Station has adopted this water conservation plan pursuant to TCEQ rules.

The plan lists the TCEQ rules; describes the power generation process at the Poca Agua Steam Electric Power Station and associated water uses; sets a water conservation goal; describes water measurement devices and methods; discusses leak detection, repair, and water loss accounting; and reports existing and future water use efficiency practices.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

The TCEQ rules governing development of water conservation plans for industrial or mining use are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.3 of the Texas Administrative Code (TAC), which is included in Appendix B.

A water conservation plan is defined as "a strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s)[1]." The minimum requirements for water conservation plans for industrial or mining use are as follows:

TAC Reference	Subject	Plan Location
30 TAC §288.3(a)(1)	Production Process	Section 3, Appendix C
30 TAC §288.3(a)(3)	Water Conservation Goals	Section 4
30 TAC §288.3(a)(4)	Accurate Metering	Section 5
30 TAC §288.3(a)(5)	Leak Detection, Repair, and Water Loss Accounting	Section 6
30 TAC §288.3(a)(6)	Water Use Efficiency Process and/or Equipment Upgrades	Section 7
30 TAC §288.3(a)(7)	Other Conservation Practices	Section 8
30 TAC §288.3(b)	Review and Update of Plan	Section 9

[TCEQ rules do not require a drought contingency plan for industrial or mining water users.]

[1] Superscripted numbers match references listed in Appendix A.

3. DESCRIPTION OF THE WATER USES IN THE ELECTRIC GENERATION PROCESS

[This section must include a description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal. If your facility uses other cooling methods, such as once-through cooling or dry-type cooling, please amend the process description below. Also modify the water sources and water uses to match those at your facility.]

The Poca Agua Steam Electric Power Station is a natural gas-fired electric generating facility located at 4220 Poca Agua Road in the City of Poca Agua, Texas, on the south shore of Poca Agua Reservoir. The facility consists of one natural gas-fired, 300 megawatt (MW) steam electric generating unit that has been in service since 1972.

Water used for cooling and industrial uses is supplied with surface water from Poca Agua Reservoir, a man-made reservoir that was constructed in part to meet water demands from the generating facility. This water is used for cooling, boiler feed, fire protection, and service water. A water use diagram for the Poca Agua Steam Electric Power Station is presented in Appendix C.

Cooling water is pumped from Poca Agua Reservoir through the condensers and returned to the reservoir (a “once-through” cooling process). Service water is taken from the cooling water and used for boiler feed and miscellaneous purposes. Service water is treated using a reverse osmosis/demineralization process to create a high-purity boiler feed water. Reverse osmosis reject water and boiler blowdown are monitored and treated as necessary before being returned to the reservoir along with the cooling water.

Miscellaneous non-potable water uses include equipment washdown and fire protection. The amount of miscellaneous surface water use is estimated by multiplying the capacity of the service water pumps by their run times. Average flowrates under normal operating conditions are shown on the water use diagram in Appendix C.

Stormwater from the facility is collected and routed through oil-water separators, monitored, and discharged to the reservoir.

Potable water for domestic purposes is supplied by the City of Poca Agua. Wastewater treatment is provided by an on-site septic system.

The largest consumptive water use at the Poca Agua Steam Electric Power Station is forced evaporation from the once-through cooling process. The forced evaporation is estimated to be

0.35 gallons per kilowatt-hour (kWh) of generation[2]. The exact amount varies from year to year depending on the amount of power generated at the facility and climatic conditions. Assuming a 50 percent load factor, approximately 1,411 acre-feet per year (ac-ft/yr) of cooling makeup water is required.

Miscellaneous uses consume approximately 7 ac-ft/yr, and domestic uses consume an average of approximately 2 ac-ft/yr. Because water is used for fire protection on a very infrequent, as-needed basis, no average annual quantity has been estimated.

4. SPECIFICATION OF WATER CONSERVATION GOALS

[This section must include specification of 5-year and 10-year water conservation goals and the basis for development of such goals. Please amend the water conservation goals, basis, and time frame to match those at your facility. Examples of methods that could be used to conserve water include switching to a higher quality source water for cooling tower makeup water, using advanced treatment processes to allow more cycling of process water and to reduce water waste, switching to reclaimed water as a source for most uses, water wise landscaping, retrofit of domestic plumbing fixtures with water-efficient fixtures, and employee education[3,4].]

The Poca Agua Steam Electric Power Station has set a five-year water conservation goal of reducing total water usage by ___ percent (from 1,411 ac-ft/yr to ____ ac-ft/yr assuming a 50 percent load factor) by _____ *[five years from date of plan]*. The ten-year goal is the same as the five-year goal. This will be achieved by ________________________ *[insert proposed water conservation methods]*.

5. ACCURATE METERING TO MEASURE AND ACCOUNT FOR WATER

[This section must include a description of the device(s) and/or method(s) within an accuracy of plus or minus five percent to be used to measure and account for the amount of water diverted from the source of supply. Please amend the metering description to match those at your facility.]

The Poca Agua Steam Electric Power Station estimates water usage by multiplying pump run times and pump capacity (from manufacturers' pump curves). This is the best available technology for measuring cooling water flows that can reach 360 million gallons per day when the plant is operating at full capacity. Daily cooling water flows are reported to the Texas Commission on Environmental Quality (TCEQ).

Domestic water supply obtained from the City of Poca Agua is metered by the City. The meter is calibrated according to the City's schedule and specifications.

6. LEAK DETECTION, REPAIR, AND WATER LOSS ACCOUNTING

[This section must include a description of leak-detection, repair, and water loss accounting in the water distribution system. Please amend the description below to match operations at your facility.]

At the Poca Agua Steam Electric Power Station, leaks are identified through the following methods:

- Plant personnel routinely observe, operate, and maintain facilities throughout the day. Inspection of aboveground piping and pump packing is a normal part of employee duties.
- Plant personnel collect water samples from various points in the process and have them analyzed for key water quality parameters. Water quality problems can be indicative of water leaks.
- Operators monitor the water level in various ponds and sumps. A large change in water level can also signify a water leak.

If a water leak is indicated by any of the above means, the source of the leak is investigated and a work order for repairs is issued as necessary.

7. WATER USE EFFICIENCY PROCESS AND/OR EQUIPMENT UPGRADES

[This section must include a description of equipment and/or process modifications to improve water use efficiency. Please amend the description below to match operations at your facility.]

Several water conservation methods are already in use at the Poca Agua Steam Electric Power Station, including the following:

- Cooling water is pumped from Poca Agua Reservoir through the condensers and returned to the reservoir (once-through cooling). Much of the cooling water returned to the reservoir is eventually drawn into the cooling water intake and reused for cooling purposes.

- Water/steam is circulated through the boiler process multiple times to reduce water usage.

- Chemical dosages and concentrations are closely monitored to allow maximum cycling of boiler water/steam without scaling or corrosion.

- Reverse osmosis treatment equipment has been placed ahead of the demineralizer in the boiler feed treatment process to increase the run time of the demineralizer between regeneration events. This has extended the run time of the demineralizer by a factor of ten and has resulted in 90 percent less water wasted from the regeneration process.

- Boiler wash water is recycled.

- Stormwater, floor/equipment drainage, and miscellaneous low-volume wastes are passed through oil-water separators and discharged back to the reservoir under an existing Texas Pollutant Discharge Elimination System (TPDES) permit. Much of this water is eventually drawn into the cooling water intake and reused for cooling purposes.

- Landscape areas around the generating station are not irrigated.

8. OTHER CONSERVATION PRACTICES, METHODS, OR TECHNIQUES

[This section must include any other water conservation practice, method, or technique that the user shows to be appropriate for achieving the stated goal(s) of the water conservation plan. Please amend the description below to match operations at your facility.]

No other water conservation methods are necessary to achieve the water conservation goals for the Poca Agua Steam Electric Power Station.

9. IMPLEMENTATION OF THE WATER CONSERVATION PLAN

Appendix D contains a copy of the resolution of the Board of Directors of the Poca Agua Power Company adopting this water conservation plan. The resolution designates responsible officials to implement and enforce the water conservation plan.

Appendix E contains a copy of a letter to the chairman of the Region C Water Planning Group to inform the planning group of this water conservation plan.

This plan will be reviewed and updated every five years.

APPENDIX M

SELECTION OF KEY WATER QUALITY PARAMETERS AND BASELINE WATER QUALITY CONDITIONS

APPENDIX M
SELECTION OF KEY WATER QUALITY PARAMETERS AND BASELINE WATER QUALITY CONDITIONS

1 Key Water Quality Parameters Selection

Regional Water Planning Groups are charged with selecting key water quality parameters that are important to water uses in the region, and assessing impacts of water management strategies on these parameters. This appendix provides the parameter selection process and establishes baseline water quality conditions for the selected parameters.

In order to provide some basis for selection of parameters and for quantitative comparisons between different water bodies within the region, regulatory standards and screening levels are referenced throughout this memorandum. <u>However, it is not the intent of this memorandum to evaluate regulatory compliance of any water body within the region.</u> These regulatory standards are only used as “yardsticks” for relative comparisons of water quality within the region.

1.1 Process of Selecting Key Water Quality Parameters

Selection of key water quality parameters for surface water and groundwater involved a two-stage process. The first stage included a compilation of potential water quality parameters from various sources. These sources are described below:

a) Parameters regulated by the Texas Commission on Environmental Quality (TCEQ) in the Texas Surface Water Quality Standards (TSWQS);
b) Parameters considered for the TCEQ Water Quality Inventory in evaluation of whether water body uses are supported, not supported, or have water quality concerns. The designated water body uses included in the Water Quality Inventory are:
    i. Aquatic life use
    ii. Contact recreation use
    iii. General use
    iv. Fish consumption use
    v. Public water supply use;
c) Parameters that may impact suitability of water for irrigation; and
d) Parameters that may impact treatability of water for municipal or industrial supply.

Categories a and b above were selected to represent environmental water quality parameters, and Categories c and d were selected to be representative of water quality as related to irrigation uses and treatability for municipal or industrial supplies.

For the second stage of the process, key water quality parameters were selected from this compiled list of potential parameters based on general guidelines which were established in Appendix P of the 2006 Region C Plan. The general guidelines used to further develop a manageable and meaningful list of key water quality parameters are described below.

a) Selected parameters should be representative of water quality conditions that may be impacted on a regional scale and that are likely to be impacted by multiple water management strategies within the region. Water quality issues associated with localized conditions (such as elevated levels of a toxic material within one water body) will be addressed as necessary within the environmental impact evaluations of the individual water management strategies for each water user group.
b) Sufficient data must be available for a parameter in order to include it as a key water quality parameter. If meaningful statistical summaries cannot be carried out on the parameter, it should not be designated as a key water quality parameter.

1.2 Selection of Parameters for the 2011 Plan

Potential key water quality parameters were assessed for the Region C planning area according to the process described above. The parameters regulated by the TCEQ in the Surface Water Quality Standards have not been modified since the development of the 2006 Plan. Also, very little has changed in terms of parameters that may impact suitability for irrigation, municipal, or industrial purposes. Therefore, the first stage in the process of selecting key water quality parameters yielded the same candidate parameters as those in the 2006 Plan. In addition, baseline conditions have not changed significantly in the years since the 2006 Plan development. Due to similar baseline conditions and unchanged assessment criteria, the key surface water quality parameters selected for the 2011 Plan are the same as those assessed in the 2006 Plan. Further information on specific candidate parameters and basis for selection, is available in Appendix P of the 2006 Plan.

Similarly, key water quality parameters were identified for groundwater based on an evaluation of the parameters regulated by drinking water standards and those known to be potential problems for groundwater in Region C.

The following key water quality parameters were selected to assess impacts from water management strategies:

- Surface Water:
  - Ammonia-nitrogen
  - Nitrate-nitrogen
  - Total phosphorous
  - Chlorophyll-a
  - Total dissolved solids (TDS)
- Groundwater
  - TDS

2.0 Baseline Water Quality Conditions

Baseline water quality conditions were evaluated using data obtained from the Texas Surface Water Quality Monitoring Database. Water quality data for reservoirs and streams located within Region C were evaluated, as well as sources located outside of Region C that are currently being considered for use or are in use as raw water sources for the region. Statistical analyses were conducted to determine the number of data points (count), mean, median, 75th percentile, maximum, and minimum for each water body assessed. Data from 1/1/1998 through 12/31/2009 were assessed for each parameter. Statistical summaries for each surface water parameter are presented in Section 3.0 of this document.

To further demonstrate baseline water quality conditions in Region C, each water body was placed in categories based on parameter concentration. The lowest bin (Bin 1) constitutes levels that are less than regulatory or literature levels of concern. The second bin (Bin 2) represents parameter levels that are approaching regulatory standards or levels of concern (nominally 80 percent of regulated standard). The highest bin (Bin 3) represents parameter levels that exceed the stated regulatory standards, levels of concern, or screening criteria. Screening levels for nutrient parameters were based on the TCEQ *2008 Guidance for Assessing and Reporting Surface Water Quality in Texas*. For surface water assessment of TDS, screening levels were based on National Secondary Drinking Water Standards. For the groundwater TDS assessment, screening limits were based on the State of Texas Secondary Drinking Water Standard.

It is important to note that placement in Bins 2 or 3 does not necessarily indicate a violation of a water quality standard or the need for additional treatment levels. As mentioned earlier, the data presented here are summarized over the entire surface water segment (at all depths and all stations located in the main water body) or the entire aquifer/county area. In many cases, regulatory application of the standard or level of concern is performed on a different group of data than are summarized here (e.g., for lake mixed layer samples only). The bin designations, while derived from regulatory standards, are only provided as a "yardstick" for assessing water quality conditions and as a basis for comparisons between water bodies. The bin designations are not to be used to evaluate whether conditions within a given water body are in compliance with regulatory standards. Tables 1 and 2 demonstrate baseline surface water and groundwater quality bins by parameter.

For TDS, the median value is used for comparison with the numerical regulatory standard or level of concern, but for nutrients and chlorophyll-a (parameters subject to the TCEQ secondary screening levels), the 75th percentile is used. This value was used for comparison because the TCEQ secondary screening levels are applied such that a source water is "of concern" when more than 25 percent of the samples taken exceed the numerical screening limit.

Table 1: Definition of Baseline Surface Water Quality Bins by Parameter

Parameter	Statistic Used for Comparison	Lower Bound of Bin 3	Basis of Lower Bound, Bin 3	Lower Bound of Bin 2	Basis of Lower Bound, Bin 2
Total Dissolved Solids	Median	500 mg/L	National Secondary Drinking Water Standard	400 mg/L	80 percent of secondary standard
Ammonia-Nitrogen (as N)	75th percentile	0.11 mg/L (reservoir) 0.33 mg/L (stream)	TCEQ 2008 Guidance for Assessing and Recording Surface Water Quality in Texas	0.088 mg/L (reservoir) 0.26 mg/L (stream)	80 percent of screening level
Nitrate-Nitrogen (as N)	75th percentile	0.37 mg/L (reservoir) 1.95 mg/L (stream)	TCEQ 2008 Guidance for Assessing and Recording Surface Water Quality in Texas	0.30 mg/L (reservoir) 1.56 mg/L (stream)	80 percent of screening level
Total Phosphorus (as P)	75th percentile	0.20 mg/L (reservoir) 0.69 mg/L (stream)	TCEQ 2008 Guidance for Assessing and Recording Surface Water Quality in Texas	0.16 mg/L (reservoir) 0.55 mg/L (stream)	80 percent of screening level
Chlorophyll-a	75th percentile	26.7 μg/L (reservoir) 14.1 μg/L (stream)	TCEQ 2008 Guidance for Assessing and Recording Surface Water Quality in Texas	21.4 μg/L (reservoir) 11.3 μg/L (stream)	80 percent of screening level

Table 2: Definition of Baseline Groundwater Quality Bins by Parameter

Parameter	Statistic Used for Comparison	Lower Bound of Bin 3	Basis of Lower Bound, Bin 3	Lower Bound of Bin 2	Basis of Lower Bound, Bin 2
Total Dissolved Solids	Median	1000 mg/L	State of Texas Secondary Drinking Water Standard	500 mg/L	National Secondary Drinking Water Standard

2.1 Surface Water Baseline Conditions

The following sections summarize the baseline water quality conditions for each key surface water quality parameter. As discussed earlier, this review of baseline conditions is not intended to provide an evaluation of compliance with regulatory standards. When referenced, regulatory standards are only used as a means of making relative comparisons between water bodies.

With respect to nutrients, it should be noted that the impact of nutrients on chlorophyll-a concentrations is site-specific and can vary significantly between water bodies. Therefore, high levels of nutrients are not necessarily indicative of poor water quality in any given water body.

Ammonia Nitrogen

Ammonia Nitrogen levels were measured from 26 reservoirs between 1998 and 2008. Of the 26 reservoirs sampled, six demonstrated 75th percentile ammonia nitrogen concentrations ranging between 0.088 and 0.11 mg/L and fell into Bin 2. Lakes with screening levels exceeding 0.11 mg/L fell into Bin 3 and included Lake Ray Hubbard (Segment 820), Lake O' the Pines (Segment 403), Benbrook Lake (Segment 830), Lewisville Lake (Segment 823), and Ray Roberts Lake (Segment 840). Lake Palestine (Segment 605), which is located on the Neches River in East Texas also had screening levels categorized as Bin 3. Fourteen other reservoirs fell into Bin 1 with screening levels less than 0.088 mg/L.

Of the twenty streams sampled for ammonia nitrogen, all but one stream fell below screening levels and were categorized as Bin 1. One stream exceeded the screening level of 0.33 mg/L and fell into Bin 3 and was the East Fork Trinity River (Segment 819). This contrasts with the 2006 Plan, where an analysis of samples collected between 1993 and 2004 yielded four streams that exceeded a similar screening level and fell into Bin 3.

Nitrate Nitrogen

Twenty-three reservoirs were sampled for nitrate nitrogen concentrations in the Region C planning area. Nine of the 23 reservoirs demonstrated 75th percentile concentrations exceeding the Bin 3 screening criteria of 0.37 mg/L. Four reservoirs fell in Bin 2 (0.30 to 0.37 mg/L) and included Eagle Mountain Reservoir (Segment 809), Richland-Chambers Reservoir (Segment 836), Joe Pool Lake (Segment 838), and Cedar Creek Reservoir (Segment 818).

Of the 15 streams sampled for nitrate nitrogen concentrations, eleven fell below screening criteria and were classified into Bin 1 (< 1.56 mg/L). Four streams exceeded the screening criteria of 1.95 mg/L and were placed in Bin 3. Streams categorized as Bin 3 included Elm Fork Trinity River above Ray Roberts Lake (Segment 824), Upper Trinity

River (Segment 805), Lower West Fork Trinity River (Segment 841), and East Fork Trinity River (Segment 819). There were no streams that fell within Bin 2 with concentrations ranging between 1.56 and 1.95 mg/L.

Total Phosphorous

None of the 26 reservoirs sampled for total phosphorous in Region C exhibited 75th percentile concentrations that exceed the TCEQ screening level of 0.20 mg/L to be placed into Bin 3. One reservoir was found to approach screening levels and was placed into Bin 2 (0.16 to 0.20 mg/L). Wright-Patman Lake (Segment 302) demonstrated a 75th percentile concentration of 0.17 mg/L.

The same streams that fell into Bin 3 for elevated nitrate nitrogen concentrations demonstrated 75th percentile total phosphorous concentrations above the TCEQ screening level. In addition to these four streams, the Trinity River above Lake Livingston (Segment 804) exceeded screening levels (≥ 0.69 mg/L) and was placed into Bin 3. Fourteen out of twenty streams sampled for total phosphorous were below the screening criteria and fell in Bin 1. One stream, Clear Fork Trinity River below Lake Weatherford (Segment 831) fell within Bin 2 with a 75th percentile concentration of 0.63 mg/L.

Chlorophyll-a

Of the 25 reservoirs sampled for chlorophyll-a, fourteen fell into Bins 2 or 3, demonstrating 75th percentile concentrations approaching or exceeding screening levels. Five reservoirs fell into Bin 2 with concentrations ranging from 21.4 to 26.7 µg/L, and nine exceeded 26.7 µg/L and fell into Bin 3. Bin 2 reservoirs included Lake Texoma (Segment 203), Lake Fork (Segment 512), Grapevine Lake (Segment 826), Bardwell Reservoir (Segment 815), and Lewisville Lake (Segment 823).

Ten out of nineteen streams that were sampled for chlorophyll-a exceeded screening criteria of 14.1 µg/L and fell into Bin 3. Two streams were categorized in Bin 2 with concentrations ranging from 11.3 to 14.1 µg/L. Bin 2 streams included Clear Fork Trinity River above Lake Weatherford (Segment 833) and West Fork Trinity River above Bridgeport Reservoir (segment 812).

Total Dissolved Solids

In general, concentrations of TDS in surface water for sampled water bodies were relatively low. Eight of 45 reservoirs and streams in the area approached or exceeded screening levels for TDS. Three water bodies were categorized into Bin 2 with median concentrations ranging from 400-500 mg/L. Bin 2 water bodies included the Upper Trinity River (Segment 805), Clear Fork Trinity River below Lake Weatherford (Segment 831), and the Lower West Fork Trinity River (Segment 841). Five water bodies demonstrated median concentrations above 500 mg/L and included East Fork Trinity River (Segment 819), Clear Fork Trinity River above Lake Weatherford (Segment 833), Red River above and below Lake Texoma (Segments 202 and 204), and Lake Texoma (Segment 203).

2.2 Groundwater Baseline Conditions

The sole key water quality parameter selected for groundwater in Region C was TDS. Baseline conditions for TDS in groundwater have changed very little since development of the 2006 Plan and were not re-assessed in this round of planning. The groundwater quality data summary table may be found in Appendix P of the 2006 Plan. The following is a summary of data found in Appendix P of the 2006 Plan.

With the exception of the Carrizo-Wilcox Aquifer, most groundwater sources in Region C report median TDS concentrations greater than 500 mg/L, the secondary drinking water standard. The Trinity Aquifer beneath these counties generally reports median concentrations between 500 mg/L and 1,000 mg/L, with the majority of the wells reporting greater than 1,000 mg/L located in Wise, Denton, Collin, Tarrant, Dallas, and Ellis Counties. TDS concentrations in the Woodbine Aquifer are even greater, with the highest median concentrations occurring in the most urban counties and those counties immediately down-gradient (Dallas, Tarrant, Ellis, and Navarro). The southern portion of the Woodbine Aquifer in Dallas, Ellis, and Navarro Counties contains median TDS levels greater than 1,000 mg/L. Limited data were available for the Nacatoch Aquifer, and no data were available for the Queen City Aquifer.

3.0 Surface Water Quality Data Summary

Tables 3-7 summarize surface water quality data by segment and parameter.

Region C Surface Water Quality Summary by Segment and Parameter

Data collected 1/1/1998 – 12/31/2009 (Source: TCEQ Water Quality Monitoring Database)

Table 3: Ammonia Nitrogen, Total (mg/L as N)									
Segment ID	**Segment Description**	**Water Body Type**	**Count**	**Average**	**Median**	**75th Percentile**	**Max**	**Min**	**Bin**
819	East Fork Trinity River	Stream	86	0.185	0.327	0.438	2.04	0.02	3
605	Lake Palestine	Lake	71	0.05	0.175	0.28	1.13	0.01	3
840	Ray Roberts Lake	Lake	116	0.07	0.184	0.193	1.62	0.02	3
822	Elm Fork Trinity River Below Lewisville Lake	Stream	248	0.1	0.139	0.16	1.42	0.02	1
839	Elm Fork Trinity River Below Ray Roberts Lake	Stream	9	0.05	0.090	0.16	0.24	0.02	1
831	Clear Fork Trinity River Below Lake Weatherford	Stream	44	0.085	0.245	0.153	3.13	0.02	1
824	Elm Fork Trinity River Above Ray Roberts Lake	Stream	121	0.08	0.215	0.15	6.74	0.02	1
823	Lewisville Lake	Lake	78	0.042	0.198	0.15	2.92	0.006	3
805	Upper Trinity River	Stream	287	0.09	0.118	0.14	1.81	0.02	1
825	Denton Creek	Stream	35	0.09	0.186	0.135	1.53	0.05	1
833	Clear Fork Trinity River Above Lake Weatherford	Stream	20	0.06	0.084	0.133	0.17	0.02	1
830	Benbrook Lake	Lake	321	0.05	0.085	0.13	0.89	0.02	3
806	West Fork Trinity River Below Lake Worth	Stream	128	0.05	0.083	0.12	0.4	0.02	1
841	Lower West Fork Trinity River	Stream	162	0.06	0.104	0.12	1.52	0.02	1
403	Lake O' the Pines	Lake	296	0.053	0.126	0.113	6	0.01	3
820	Lake Ray Hubbard	Lake	108	0.05	0.086	0.11	0.49	0.02	3
804	Trinity River Above Lake Livingston	Stream	99	0.05	0.076	0.105	0.44	0.02	1
202	Red River Below Lake Texoma	Stream	41	0.05	0.061	0.1	0.13	0.02	1
814	Chambers Creek Above Richland-Chambers Reservoir	Stream	26	0.055	0.079	0.1	0.22	0.02	1
203	Lake Texoma	Lake	132	0.07	0.069	0.1	0.21	0.01	2
302	Wright-Patman Lake	Lake	329	0.05	0.078	0.1	0.409	0.02	2
815	Bardwell Reservoir	Lake	41	0.05	0.082	0.1	0.43	0.03	2
818	Cedar Creek Reservoir	Lake	781	0.05	0.087	0.1	1.69	0.02	2
838	Joe Pool Lake	Lake	50	0.03	0.065	0.095	0.31	0.02	2
821	Lake Lavon	Lake	9	0.07	0.081	0.09	0.23	0.03	2
810	West Fork Trinity River Below Bridgeport Reservoir	Stream	44	0.05	0.077	0.0825	0.211	0.02	1
204	Red River Above Lake Texoma	Stream	27	0.05	0.070	0.08	0.3	0.021	1
303	Sulphur/South Sulphur River	Stream	136	0.05	0.083	0.08	0.508	0.040	1
829	Clear Fork Trinity River Below Benbrook Lake	Stream	47	0.05	0.069	0.08	0.2	0.05	1
809	Eagle Mountain Reservoir	Lake	740	0.05	0.073	0.08	0.85	0.02	1
836	Richland-Chambers Reservoir	Lake	651	0.05	0.099	0.08	2.62	0.02	1
835	Chambers Creek Below Richland-Chambers Reservoir	Stream	4	0.05	0.073	0.073	0.14	0.05	1
816	Lake Waxahachie	Lake	31	0.05	0.085	0.07	0.47	0.05	1
832	Lake Weatherford	Lake	24	0.05	0.064	0.07	0.17	0.05	1
307	Chapman/Cooper Lake	Lake	68	0.05	0.062	0.0625	0.13	0.05	1
812	West Fork Trinity River Above Bridgeport Reservoir	Stream	16	0.05	0.060	0.060	0.11	0.05	1
507	Lake Tawakoni	Lake	103	0.05	0.048	0.06	0.22	0.001	1
817	Navarro Mills Lake	Lake	39	0.05	0.063	0.06	0.2	0.02	1
827	White Rock Lake	Lake	2	0.055	0.055	0.058	0.06	0.05	1
837	Richland Creek Above Richland-Chambers Reservoir	Stream	8	0.05	0.055	0.053	0.08	0.05	1
504	Toledo Bend Reservoir	Lake	157	0.05	0.080	0.05	2.36	0.001	1
512	Lake Fork	Lake	98	0.05	0.060	0.05	1	0.001	1
807	Lake Worth	Lake	95	0.02	0.034	0.05	0.16	0.02	1
811	Bridgeport Reservoir	Lake	436	0.02	0.042	0.05	0.6	0.02	1
828	Lake Arlington	Lake	184	0.03	0.053	0.05	1.1	0.02	1
826	Grapevine Lake	Lake	128	0.02	0.036	0.04	0.21	0.02	1

Region C Surface Water Quality Summary by Segment and Parameter

Data collected 1/1/1998 – 12/31/2009 (Source: TCEQ Water Quality Monitoring Database)

Table 4: Nitrate Nitrogen, Total (mg/L as N)

Row Labels	Segment Description	Water Body Type	Count	Median	Mean	75th Percentile	Max	Min	Bin
819	East Fork Trinity River	Stream	16	9.97	10.189	13.25	17.8	4.9	3
841	Lower West Fork Trinity River	Stream	16	9.21	8.018	11.25	12.9	1.53	3
805	Upper Trinity River	Stream	35	7.7	6.723	9.505	13.1	0.07	3
824	Elm Fork Trinity River Above Ray Roberts Lake	Stream	35	4.38	4.659	7.45	12.82	0.18	3
817	Navarro Mills Lake	Lake	6	0.075	1.000	1.915	3.23	0.05	3
814	Chambers Creek Above Richland-Chambers Reservoir	Stream	5	0.8	0.868	1.24	2.1	0.05	1
825	Denton Creek	Stream	9	0.58	0.704	0.96	1.25	0.3	1
806	West Fork Trinity River Below Lake Worth	Stream	13	0.23	0.500	0.83	1.4	0.02	1
839	Elm Fork Trinity River Below Ray Roberts Lake	Stream	7	0.55	0.669	0.825	1.32	0.17	1
810	West Fork Trinity River Below Bridgeport Reservoir	Stream	8	0.51	0.539	0.748	1.09	0.05	1
822	Elm Form Trinity River Below Lewisville Lake	Stream	74	0.5	0.582	0.745	1.73	0.003	1
840	Ray Roberts Lake	Lake	112	0.285	0.633	0.733	5.36	0.003	3
815	Bardwell Reservoir	Lake	6	0.15	0.333	0.663	0.8	0.05	3
821	Lake Lavon	Lake	10	0.46	0.796	0.585	4.57	0.07	3
826	Grapevine Lake	Lake	42	0.255	0.313	0.56	1.15	0.003	3
816	Lake Waxahachie	Lake	6	0.2	0.320	0.545	0.81	0.05	3
820	Lake Ray Hubbard	Lake	95	0.19	0.273	0.455	0.96	0.003	3
823	Lewisville Lake	Lake	64	0.12	0.444	0.423	7.13	0.003	3
828	Lake Arlington	Lake	7	0.36	0.360	0.375	0.4	0.3	3
818	Cedar Creek Reservoir	Lake	54	0.245	0.292	0.365	0.82	0.01	2
838	Joe Pool Lake	Lake	5	0.25	1.350	0.36	5.72	0.2	2
809	Eagle Mountain Reservoir	Lake	131	0.19	0.239	0.34	0.93	0.01	2
836	Richland-Chambers Reservoir	Lake	48	0.245	0.284	0.34	0.79	0.01	2
829	Clear Fork Trinity River Below Benbrook Lake	Stream	8	0.275	0.296	0.335	0.54	0.17	1
811	Bridgeport Reservoir	Lake	24	0.19	0.235	0.29	0.5	0.14	1
830	Benbrook Lake	Lake	18	0.24	0.239	0.25	0.32	0.18	1
303	Sulphur/South Sulphur River	Stream	24	0.065	0.198	0.228	1.44	0.05	1
307	Chapman/Cooper Lake	Lake	20	0.105	0.153	0.218	0.36	0.05	1
507	Lake Tawakoni	Lake	255	0.06	0.132	0.21	1.99	0.003	1
504	Toledo Bend Reservoir	Lake	618	0.05	0.090	0.09	3.12	0.02	1
202	Red River Below Lake Texoma	Stream	1	0.09	0.090	0.09	0.09	0.09	1
512	Lake Fork	Lake	238	0.04	0.067	0.07	0.36	0.02	1
403	Lake O' the Pines	Lake	34	0.05	0.099	0.058	0.56	0.05	1
302	Wright-Patman Lake	Lake	139	0.05	0.060	0.05	0.487	0.01	1
832	Lake Weatherford	Lake	6	0.05	0.057	0.05	0.09	0.05	1
812	West Fork Trinity River Above Bridgeport Reservoir	Stream	6	0.05	0.050	0.05	0.05	0.05	1
203	Lake Texoma	Lake	4	0.02	0.048	0.048	0.13	0.02	1
804	Trinity River Above Lake Livingston	Stream	1	0.03	0.030	0.03	0.03	0.03	1

Region C Surface Water Quality Summary by Segment and Parameter

Data collected 1/1/1998 – 12/31/2009 (Source: TCEQ Water Quality Monitoring Database)

Table 5: Phosphorous Total, Wet Method (mg/L as P)									
Row Labels	Segment Description	Water Body Type	Count	Median	Mean	75th Percentile	Max	Min	Bin
819	East Fork Trinity River	Stream	89	1.7	1.838	2.88	4.82	0.03	3
805	Upper Trinity River	Stream	455	1.15	1.191	1.725	4.17	0.04	3
804	Trinity River Above Lake Livingston	Stream	98	1.08	1.179	1.605	3.3	0.05	3
841	Lower West Fork Trinity River	Stream	156	0.995	1.031	1.415	2.5	0.05	3
824	Elm Fork Trinity River Above Ray Roberts Lake	Stream	111	0.16	0.763	0.93	4.12	0.02	3
831	Clear Fork Trinity River Below Lake Weatherford	Stream	108	0.155	0.608	0.625	7.39	0.02	2
204	Red River Above Lake Texoma	Stream	28	0.205	0.329	0.5	0.99	0.09	1
812	West Fork Trinity River Above Bridgeport Reservoir	Stream	16	0.28	0.312	0.443	0.58	0.06	1
825	Denton Creek	Stream	36	0.195	0.264	0.303	0.94	0.04	1
814	Chambers Creek Above Richland-Chambers Reservoir	Stream	137	0.1	0.268	0.3	2.4	0.01	1
810	West Fork Trinity River Below Bridgeport Reservoir	Stream	44	0.14	0.179	0.22	0.69	0.05	1
837	Richland Creek Above Richland-Chambers Reservoir	Stream	8	0.095	0.145	0.193	0.35	0.06	1
303	Sulphur/South Sulphur River	Stream	142	0.124	0.147	0.19	1.1	0.01	1
833	Clear Fork Trinity River Above Lake Weatherford	Stream	38	0.095	0.145	0.18	0.72	0.01	1
835	Chambers Creek Below Richland-Chambers Reservoir	Stream	4	0.105	0.125	0.18	0.24	0.05	1
302	Wright-Patman Lake	Lake	377	0.12	0.149	0.172	1.65	0.01	2
202	Red River Below Lake Texoma	Stream	33	0.11	0.163	0.17	1.037	0.037	1
822	Elm Form Trinity River Below Lewisville Lake	Stream	223	0.12	0.137	0.15	2.87	0.01	1
840	Ray Roberts Lake	Lake	111	0.06	0.099	0.14	0.5	0.01	1
307	Chapman/Cooper Lake	Lake	73	0.08	0.106	0.13	0.383	0.05	1
818	Cedar Creek Reservoir	Lake	830	0.09	0.119	0.13	1.33	0.01	1
823	Lewisville Lake	Lake	76	0.065	0.190	0.12	2.5	0.01	1
806	West Fork Trinity River Below Lake Worth	Stream	153	0.08	0.099	0.11	0.7	0.02	1
403	Lake O' the Pines	Lake	306	0.06	0.158	0.1	8.34	0.01	1
512	Lake Fork	Lake	117	0.06	0.095	0.1	0.54	0.02	1
605	Lake Palestine	Lake	72	0.07	0.106	0.1	0.68	0.05	1
809	Eagle Mountain Reservoir	Lake	742	0.08	0.087	0.1	0.4	0.01	1
836	Richland-Chambers Reservoir	Lake	640	0.056	0.083	0.099	0.69	0.01	1
203	Lake Texoma	Lake	132	0.072	0.085	0.098	0.457	0.02	1
807	Lake Worth	Lake	95	0.079	0.084	0.095	0.241	0.042	1
507	Lake Tawakoni	Lake	92	0.07	0.079	0.09	0.28	0.01	1
830	Benbrook Lake	Lake	337	0.07	0.074	0.09	0.269	0.02	1
828	Lake Arlington	Lake	184	0.065	0.085	0.085	1.288	0.03	1
817	Navarro Mills Lake	Lake	39	0.06	0.065	0.075	0.25	0.02	1
811	Bridgeport Reservoir	Lake	468	0.05	0.065	0.073	0.664	0.01	1
820	Lake Ray Hubbard	Lake	107	0.06	0.076	0.07	1.5	0.01	1
829	Clear Fork Trinity River Below Benbrook Lake	Stream	47	0.06	0.062	0.07	0.12	0.02	1
832	Lake Weatherford	Lake	24	0.06	0.062	0.07	0.1	0.04	1
827	White Rock Lake	Lake	3	0.06	0.064	0.066	0.072	0.06	1
504	Toledo Bend Reservoir	Lake	113	0.06	0.069	0.06	0.19	0.06	1
815	Bardwell Reservoir	Lake	47	0.05	0.052	0.06	0.25	0.01	1
816	Lake Waxahachie	Lake	31	0.06	0.067	0.06	0.25	0.02	1
826	Grapevine Lake	Lake	128	0.05	0.061	0.06	0.58	0.01	1
838	Joe Pool Lake	Lake	118	0.04	0.058	0.06	0.4	0.01	1
821	Lake Lavon	Lake	10	0.05	0.065	0.058	0.22	0.04	1
839	Elm Fork Trinity River Below Ray Roberts Lake	Stream	6	0.035	0.035	0.04	0.06	0.01	1

Region C Surface Water Quality Summary by Segment and Parameter

Data collected 1/1/1998 – 12/31/2009 (Source: TCEQ Water Quality Monitoring Database)

Table 6: Chlorophyll-a, Spectrophotometric Acid. Method (µg/L)									
Segment ID	**Segment Description**	**Water Body Type**	**Count**	**Median**	**Mean**	**75th Percentile**	**Max**	**Min**	**Bin**
507	Lake Tawakoni	Lake	216	33.5	35.71	50	124	1	3
605	Lake Palestine	Lake	28	27.6	37.38	48.45	143	1	3
828	Lake Arlington	Lake	183	27.6	30.25	40	95.4	3.6	3
818	Cedar Creek Reservoir	Lake	821	23.8	26.75	36	112.3	1	3
302	Wright-Patman Lake	Lake	239	17	25.56	34.85	150	1	3
830	Benbrook Lake	Lake	339	21.4	23.66	34.7	65.4	1.6	3
820	Lake Ray Hubbard	Lake	49	25	25.22	34	49.8	1	3
807	Lake Worth	Lake	95	21	22.91	32	50.7	1	3
806	West Fork Trinity River Below Lake Worth	Stream	147	19	21.67	29.15	94	0.9	3
809	Eagle Mountain Reservoir	Lake	741	21.4	22.04	28.5	67.4	1.8	3
835	Chambers Creek Below Richland-Chambers Reservoir	Stream	4	10	25.83	25.825	73.3	10	3
823	Lewisville Lake	Lake	38	19.8	26.71	25.75	150.1	6.2	2
815	Bardwell Reservoir	Lake	34	14	17.35	24	52.1	1	2
826	Grapevine Lake	Lake	102	15.95	17.60	23.45	58.4	3.8	2
512	Lake Fork	Lake	319	15	16.72	21.5	73.2	1	2
203	Lake Texoma	Lake	132	14.25	17.51	21.45	155	2.88	2
824	Elm Fork Trinity River Above Ray Roberts Lake	Stream	73	10.7	20.30	21.4	163	1	3
836	Richland-Chambers Reservoir	Lake	653	12.7	15.64	21.1	83.7	0.7	1
804	Trinity River Above Lake Livingston	Stream	91	12	16.92	20.45	98.6	0.01	3
832	Lake Weatherford	Lake	17	10	14.72	19.8	35.2	1	1
202	Red River Below Lake Texoma	Stream	33	10	15.35	19.5	73.4	1	3
204	Red River Above Lake Texoma	Stream	13	8.01	14.14	19.2	81.4	1	3
822	Elm Form Trinity River Below Lewisville Lake	Stream	176	11.55	15.85	18.25	81	0.2	3
504	Toledo Bend Reservoir	Lake	283	11	14.85	18	204	1	1
307	Chapman/Cooper Lake	Lake	46	12.15	17.15	17.85	130	10	1
838	Joe Pool Lake	Lake	59	8	16.00	17.65	170	0.003	1
821	Lake Lavon	Lake	5	6	11.86	16	30.3	1	1
805	Upper Trinity River	Stream	300	10.25	12.37	15.6	50.5	0.2	3
841	Lower West Fork Trinity River	Stream	150	10	12.24	15.175	58	0.9	3
816	Lake Waxahachie	Lake	20	10	13.10	14.7	41.4	1	1
819	East Fork Trinity River	Stream	54	10	13.27	14.225	45.6	5	3
812	West Fork Trinity River Above Bridgeport Reservoir	Stream	11	10	12.77	12.5	32	3.2	2
840	Ray Roberts Lake	Lake	31	8	10.19	12.05	37.4	3	1
833	Clear Fork Trinity River Above Lake Weatherford	Stream	31	10	18.98	12	222	0.82	2
403	Lake O' the Pines	Lake	265	10	9.82	11.8	63.4	0.01	1
810	West Fork Trinity River Below Bridgeport Reservoir	Stream	31	10	10.74	10.7	41.6	1	1
814	Chambers Creek Above Richland-Chambers Reservoir	Stream	13	10	9.55	10.7	19.6	1.33	1
817	Navarro Mills Lake	Lake	33	10	8.79	10.7	22.4	0.0002	1
303	Sulphur/South Sulphur River	Stream	105	10	9.90	10	45.4	1	1
825	Denton Creek	Stream	23	10	8.68	10	13.9	1	1
829	Clear Fork Trinity River Below Benbrook Lake	Stream	33	10	9.64	10	30	1	1
831	Clear Fork Trinity River Below Lake Weatherford	Stream	93	3.69	5.61	9.3	38.4	0.2	1
811	Bridgeport Reservoir	Lake	470	5.9	6.52	8	37.9	1	1
837	Richland Creek Above Richland-Chambers Reservoir	Stream	7	1.25	3.24	2.805	12.8	1	1

Region C Surface Water Quality Summary by Segment and Parameter

Data collected 1/1/1998 – 12/31/2009 (Source: TCEQ Water Quality Monitoring Database)

Table 7: Total Dissolved Solids (mg/L as N) as Residue, Total Filtrable (dried at 180°)

Segment ID	Segment Description	Water Body Type	Count	Average	Median	75th Percentile	Max	Min	Bin
204	Red River Above Lake Texoma	Stream	28	2415	2421.21	3347.5	4740	666	3
203	Lake Texoma	Lake	132	986.5	981.95	1166.25	1640	395	3
202	Red River Below Lake Texoma	Stream	42	888.5	870.07	1045	2364	45	3
833	Clear Fork Trinity River Above Lake Weatherford	Stream	21	550	564.29	596	874	398	3
819	East Fork Trinity River	Stream	64	542	548.02	648	1300	214	3
841	Lower West Fork Trinity River	Stream	70	448	430.40	486	662	220	2
831	Clear Fork Trinity River Below Lake Weatherford	Stream	68	428	454.49	493.5	968	234	2
805	Upper Trinity River	Stream	85	414	393.21	455	1080	73	2
804	Trinity River Above Lake Livingston	Stream	20	399	361.75	444	490	71	1
824	Elm Fork Trinity River Above Ray Roberts Lake	Stream	114	392	423.98	488.75	1310	144	1
814	Chambers Creek Above Richland-Chambers Reservoir	Stream	87	348	385.44	458.5	964	162	1
838	Joe Pool Lake	Lake	65	344	409.15	386	2260	175	1
810	West Fork Trinity River Below Bridgeport Reservoir	Stream	44	316	350.30	413	760	170	1
812	West Fork Trinity River Above Bridgeport Reservoir	Stream	18	283	578.06	620	3450	109	1
829	Clear Fork Trinity River Below Benbrook Lake	Stream	45	282	276.36	314	690	28	1
821	Lake Lavon	Lake	10	281	276.30	289.25	372	222	1
822	Elm Form Trinity River Below Lewisville Lake	Stream	178	250	257.18	285	708	69	1
832	Lake Weatherford	Lake	25	244	239.40	257	288	166	1
835	Chambers Creek Below Richland-Chambers Reservoir	Stream	4	232	224.25	243	270	163	1
827	White Rock Lake	Lake	2	231	231.00	254.5	278	184	1
825	Denton Creek	Stream	54	228.5	243.27	265.5	354	185	1
837	Richland Creek Above Richland-Chambers Reservoir	Stream	24	227	365.90	426	1010	160	1
815	Bardwell Reservoir	Lake	30	223	222.97	247.5	342	75	1
809	Eagle Mountain Reservoir	Lake	711	222	224.18	236	376	52.2	1
807	Lake Worth	Lake	95	213	217.31	234.5	287	157	1
826	Grapevine Lake	Lake	149	210	201.04	223	258	92	1
823	Lewisville Lake	Lake	127	207	252.46	240	730	67	1
817	Navarro Mills Lake	Lake	28	203.5	207.21	226	256	154	1
830	Benbrook Lake	Lake	331	195	197.26	209	306	153	1
839	Elm Fork Trinity River Below Ray Roberts Lake	Stream	23	195	196.00	204.5	241	169	1
303	Sulphur/South Sulphur River	Stream	149	192	219.72	284	620	76	1
820	Lake Ray Hubbard	Lake	159	192	197.02	210.5	835	118	1
828	Lake Arlington	Lake	184	184	192.66	200	461	114	1
811	Bridgeport Reservoir	Lake	436	184	188.60	206	276	142	1
816	Lake Waxahachie	Lake	29	180	185.45	208	286	64	1
840	Ray Roberts Lake	Lake	176	179	183.84	194	344	38	1
836	Richland-Chambers Reservoir	Lake	654	164	167.99	178	284	59.1	1
605	Lake Palestine	Lake	63	137	142.17	164	250	84	1
307	Chapman/Cooper Lake	Lake	72	134.5	148.03	150	420	101	1
302	Wright-Patman Lake	Lake	339	132	140.69	159.5	536	44	1
818	Cedar Creek Reservoir	Lake	784	121	128.58	134	804	55	1
403	Lake O' the Pines	Lake	178	107.5	118.21	123	376	54	1
507	Lake Tawakoni	Lake	116	107.5	108.84	118	150	78	1
512	Lake Fork	Lake	54	103	130.96	116.25	1300	75	1
504	Toledo Bend Reservoir	Lake	3	77	77.67	81	85	71	1

APPENDIX N

SOCIO-ECONOMIC IMPACTS OF NOT MEETING WATER NEEDS

Economic Impacts of Projected Water Shortages for the Region C Regional Water Planning Area

Prepared in Support of the 2011 Region C Regional Water Plan

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July 2010 (Revised 1 September, 2010)

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Introduction

Water shortages during drought would likely curtail or eliminate economic activity in business and industries reliant on water. For example, without water farmers cannot irrigate; refineries cannot produce gasoline, and paper mills cannot make paper. Unreliable water supplies would not only have an immediate and real impact on existing businesses and industry, but they could also adversely affect economic development in Texas. From a social perspective, water supply reliability is critical as well. Shortages would disrupt activity in homes, schools and government and could adversely affect public health and safety. For all of the above reasons, it is important to analyze and understand how restricted water supplies during drought could affect communities throughout the state.

Administrative rules require that regional water planning groups evaluate the impacts of not meeting water needs as part of the regional water planning process, and rules direct TWDB staff to provide technical assistance: "*The executive administrator shall provide available technical assistance to the regional water planning groups, upon request, on water supply and demand analysis, including methods to evaluate the social and economic impacts of not meeting needs*" [(§357.7 (4)(A)]. Staff of the TWDB's Water Resources Planning Division designed and conducted this report in support of the Region C Regional Water Planning Group.

This document summarizes the results of our analysis and discusses the methodology used to generate the results. Section 1 outlines the overall methodology and discusses approaches and assumptions specific to each water use category (i.e., irrigation, livestock, mining, steam-electric, municipal and manufacturing). Section 2 presents the results for each category where shortages are reported at the regional planning area level and river basin level. Results for individual water user groups are not presented, but are available upon request.

1. Methodology

Section 1 provides a general overview of how economic and social impacts were measured. In addition, it summarizes important clarifications, assumptions and limitations of the study.

1.1 Economic Impacts of Water Shortages

1.1.1 General Approach

Economic analysis as it relates to water resources planning generally falls into two broad areas. Supply side analysis focuses on costs and alternatives of developing new water supplies or implementing programs that provide additional water from current supplies. Demand side analysis concentrates on impacts or benefits of providing water to people, businesses and the environment. Analysis in this report focuses strictly on demand side impacts. When analyzing the economic impacts of water shortages as defined in Texas water planning, three potential scenarios are possible:

1) Scenario 1 involves situations where there are physical shortages of raw surface or groundwater due to drought of record conditions. For example, City A relies on a reservoir with average conservation storage of 500 acre-feet per year and a firm yield of 100 acre feet. In 2010, the city uses about 50 acre-feet per year, but by 2030 their demands are expected to increase to 200 acre-feet. Thus, in 2030 the reservoir would not have enough water to meet the city's demands, and people would experience a shortage of 100 acre-feet assuming drought of record conditions.

Under normal or average climatic conditions, the reservoir would likely be able to provide reliable water supplies well beyond 2030.

2) Scenario 2 is a situation where despite drought of record conditions, water supply sources can meet existing use requirements; however, limitations in water infrastructure would preclude future water user groups from accessing these water supplies. For example, City B relies on a river that can provide 500 acre-feet per year during drought of record conditions and other constraints as dictated by planning assumptions. In 2010, the city is expected to use an estimated 100 acre-feet per year and by 2060 it would require no more than 400 acre-feet. But the intake and pipeline that currently transfers water from the river to the city's treatment plant has a capacity of only 200 acre-feet of water per year. Thus, the city's water supplies are adequate even under the most restrictive planning assumptions, but their conveyance system is too small. This implies that at some point – perhaps around 2030 - infrastructure limitations would constrain future population growth and any associated economic activity or impacts.

3) Scenario 3 involves water user groups that rely primarily on aquifers that are being depleted. In this scenario, projected and in some cases existing demands may be unsustainable as groundwater levels decline. Areas that rely on the Ogallala aquifer are a good example. In some communities in the region, irrigated agriculture forms a major base of the regional economy. With less irrigation water from the Ogallala, population and economic activity in the region could decline significantly assuming there are no offsetting developments.

Assessing the social and economic effects of each of the above scenarios requires various levels and methods of analysis and would generate substantially different results for a number of reasons; the most important of which has to do with the time frame of each scenario. Scenario 1 falls into the general category of static analysis. This means that models would measure impacts for a small interval of time such as a drought. Scenarios 2 and 3, on the other hand imply a dynamic analysis meaning that models are concerned with changes over a much longer time period.

Since administrative rules specify that planning analysis be evaluated under drought of record conditions (a static and random event), socioeconomic impact analysis developed by the TWDB for the state water plan is based on assumptions of Scenario 1. Estimated impacts under scenario 1 are point estimates for years in which needs are reported (2010, 2020, 2030, 2040, 2050 and 2060). They are independent and distinct "what if" scenarios for a particular year and shortages are assumed to be temporary events resulting from drought of record conditions. Estimated impacts measure what would happen if water user groups experience water shortages for a period of one year.

The TWDB recognize that dynamic models may be more appropriate for some water user groups; however, combining approaches on a statewide basis poses several problems. For one, it would require a complex array of analyses and models, and might require developing supply and demand forecasts under "normal" climatic conditions as opposed to drought of record conditions. Equally important is the notion that combining the approaches would produce inconsistent results across regions resulting in a so-called "apples to oranges" comparison.

A variety tools are available to estimate economic impacts, but by far, the most widely used today are input-output models (IO models) combined with social accounting matrices (SAMs). Referred to as IO/SAM models, these tools formed the basis for estimating economic impacts for agriculture (irrigation and livestock water uses) and industry (manufacturing, mining, steam-electric and commercial business activity for municipal water uses).

Since the planning horizon extends through 2060, economic variables in the baseline are adjusted in accordance with projected changes in demographic and economic activity. Growth rates for municipal water use sectors (i.e., commercial, residential and institutional) are based on TWDB population forecasts. Future values for manufacturing, agriculture, and mining and steam-electric activity are based on the same underlying economic forecasts used to estimate future water use for each category.

The following steps outline the overall process.

Step 1*: Generate IO/SAM Models and Develop Economic Baseline*

IO/SAM models were estimated using propriety software known as IMPLAN PRO™ (Impact for Planning Analysis). IMPLAN is a modeling system originally developed by the U.S. Forestry Service in the late 1970s. Today, the Minnesota IMPLAN Group (MIG Inc.) owns the copyright and distributes data and software. It is probably the most widely used economic impact model in existence. IMPLAN comes with databases containing the most recently available economic data from a variety of sources.[1] Using IMPLAN software and data, transaction tables conceptually similar to the one discussed previously were estimated for each county in the region and for the region as a whole. Each transaction table contains 528 economic sectors and allows one to estimate a variety of economic statistics including:

- **total sales -** total production measured by sales revenues;
- **intermediate sales -** sales to other businesses and industries within a given region;
- **final sales –** sales to end users in a region and exports out of a region**;**
- **employment -** number of full and part-time jobs (annual average) required by a given industry including self-employment;
- **regional income -** total payroll costs (wages and salaries plus benefits) paid by industries, corporate income, rental income and interest payments; and
- **business taxes -** sales, excise, fees, licenses and other taxes paid during normal operation of an industry (does not include income taxes).

TWDB analysts developed an economic baseline containing each of the above variables using year 2000 data. Since the planning horizon extends through 2060, economic variables in the baseline were allowed to change in accordance with projected changes in demographic and economic activity. Growth rates for municipal water use sectors (i.e., commercial, residential and institutional) are based on TWDB population forecasts. Projections for manufacturing, agriculture, and mining and steam-electric activity are based on the same underlying economic forecasts used to estimate future water use for each category. Monetary impacts in future years are reported in constant year 2006 dollars.

It is important to stress that employment, income and business taxes are the most useful variables when comparing the relative contribution of an economic sector to a regional economy. Total sales as reported in IO/SAM models are less desirable and can be misleading because they include sales to other industries in the region for use in the production of other goods. For example, if a mill buys grain from local farmers and uses it to produce feed, sales of both the processed feed and raw corn are counted as "output" in an IO model. Thus, total sales double-count or overstate the true economic value of goods

[1]The IMPLAN database consists of national level technology matrices based on benchmark input-output accounts generated by the U.S. Bureau of Economic Analysis and estimates of final demand, final payments, industry output and employment for various economic sectors. IMPLAN regional data (i.e. states, a counties or groups of counties within a state) are divided into two basic categories: 1) data on an industry basis including value-added, output and employment, and 2) data on a commodity basis including final demands and institutional sales. State-level data are balanced to national totals using a matrix ratio allocation system and county data are balanced to state totals.

and services produced in an economy. They are not consistent with commonly used measures of output such as Gross National Product (GNP), which counts only final sales.

Another important distinction relates to terminology. Throughout this report, the term *sector* refers to economic subdivisions used in the IMPLAN database and resultant input-output models (528 individual sectors based on Standard Industrial Classification Codes). In contrast, the phrase *water use category* refers to water user groups employed in state and regional water planning including irrigation, livestock, mining, municipal, manufacturing and steam electric. Each IMPLAN sector was assigned to a specific water use category.

Step 2: *Estimate Direct and Indirect Economic Impacts of Water Needs*

Direct impacts are reductions in output by sectors experiencing water shortages. For example, without adequate cooling and process water a refinery would have to curtail or cease operation, car washes may close, or farmers may not be able to irrigate and sales revenues fall. Indirect impacts involve changes in inter-industry transactions as supplying industries respond to decreased demands for their services, and how seemingly non-related businesses are affected by decreased incomes and spending due to direct impacts. For example, if a farmer ceases operations due to a lack of irrigation water, they would likely reduce expenditures on supplies such as fertilizer, labor and equipment, and businesses that provide these goods would suffer as well.

Direct impacts accrue to immediate businesses and industries that rely on water and without water industrial processes could suffer. However, output responses may vary depending upon the severity of shortages. A small shortage relative to total water use would likely have a minimal impact, but large shortages could be critical. For example, farmers facing small shortages might fallow marginally productive acreage to save water for more valuable crops. Livestock producers might employ emergency culling strategies, or they may consider hauling water by truck to fill stock tanks. In the case of manufacturing, a good example occurred in the summer of 1999 when Toyota Motor Manufacturing experienced water shortages at a facility near Georgetown, Kentucky.[2] As water levels in the Kentucky River fell to historic lows due to drought, plant managers sought ways to curtail water use such as reducing rinse operations to a bare minimum and recycling water by funneling it from paint shops to boilers. They even considered trucking in water at a cost of 10 times what they were paying. Fortunately, rains at the end of the summer restored river levels, and Toyota managed to implement cutbacks without affecting production, but it was a close call. If rains had not replenished the river, shortages could have severely reduced output.[3]

To account for uncertainty regarding the relative magnitude of impacts to farm and business operations, the following analysis employs the concept of elasticity. Elasticity is a number that shows how a change in one variable will affect another. In this case, it measures the relationship between a percentage reduction in water availability and a percentage reduction in output. For example, an elasticity of 1.0 indicates that a 1.0 percent reduction in water availability would result in a 1.0 percent reduction in economic output. An elasticity of 0.50 would indicate that for every 1.0 percent of unavailable water, output is reduced by 0.50 percent and so on. Output elasticities used in this study are:[4]

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[2] Royal, W. "*High And Dry - Industrial Centers Face Water Shortages*." in Industry Week, Sept, 2000.

[3] The efforts described above are not planned programmatic or long-term operational changes. They are emergency measures that individuals might pursue to alleviate what they consider a temporary condition. Thus, they are not characteristic of long-term management strategies designed to ensure more dependable water supplies such as capital investments in conservation technology or development of new water supplies.

[4] Elasticities are based on one of the few empirical studies that analyze potential relationships between economic output and water shortages in the United States. The study, conducted in California, showed that a significant number of industries would suffer reduced output during water shortages. Using a survey based approach researchers posed two scenarios to different industries. In

- if water needs are 0 to 5 percent of total water demand, no corresponding reduction in output is assumed;

- if water needs are 5 to 30 percent of total water demand, for each additional one percent of water need that is not met, there is a corresponding 0.50 percent reduction in output;

- if water needs are 30 to 50 percent of total water demand, for each additional one percent of water need that is not met, there is a corresponding 0.75 percent reduction in output; and

- if water needs are greater than 50 percent of total water demand, for each additional one percent of water need that is not met, there is a corresponding 1.0 percent (i.e., a proportional reduction).

In some cases, elasticities are adjusted depending upon conditions specific to a given water user group.

Once output responses to water shortages were estimated, direct impacts to total sales, employment, regional income and business taxes were derived using regional level economic multipliers estimating using IO/SAM models. The formula for a given IMPLAN sector is:

$D_{i,t} = Q_{i,t} *_{,} S_{i,t} * E_Q * RFD_i * DM_{i(Q, L, I, T)}$

where:

$D_{i,t}$ = direct economic impact to sector *i* in period *t*

$Q_{i,t}$ = total sales for sector *i* in period *t* in an affected county

$RFD_{i,}$ = ratio of final demand to total sales for sector *i* for a given region

$S_{i,t}$ = water shortage as percentage of total water use in period *t*

E_Q = elasticity of output and water use

$DM_{i(L, I, T)}$ = direct output multiplier coefficients for labor (L), income (I) and taxes (T) for sector *i*.

Secondary impacts were derived using the same formula used to estimate direct impacts; however, indirect multiplier coefficients are used. Methods and assumptions specific to each water use sector are discussed in Sections 1.1.2 through 1.1.4.

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the first scenario, they asked how a 15 percent cutback in water supply lasting one year would affect operations. In the second scenario, they asked how a 30 percent reduction lasting one year would affect plant operations. In the case of a 15 percent shortage, reported output elasticities ranged from 0.00 to 0.76 with an average value of 0.25. For a 30 percent shortage, elasticities ranged from 0.00 to 1.39 with average of 0.47. For further information, see, California Urban Water Agencies, "*Cost of Industrial Water Shortages,*" Spectrum Economics, Inc. November, 1991.

General Assumptions and Clarification of the Methodology

As with any attempt to measure and quantify human activities at a societal level, assumptions are necessary and every model has limitations. Assumptions are needed to maintain a level of generality and simplicity such that models can be applied on several geographic levels and across different economic sectors. In terms of the general approach used here several clarifications and cautions are warranted:

1. Shortages as reported by regional planning groups are the starting point for socioeconomic analyses.

2. Estimated impacts are point estimates for years in which needs are reported (i.e., 2010, 2020, 2030, 2040, 2050 and 2060).They are independent and distinct "what if" scenarios for each particular year and water shortages are assumed to be temporary events resulting from severe drought conditions combined with infrastructure limitations. In other words, growth occurs and future shocks are imposed on an economy at 10-year intervals and resultant impacts are measured. Given, that reported figures are not cumulative in nature, it is inappropriate to sum impacts over the entire planning horizon. Doing so, would imply that the analysis predicts that drought of record conditions will occur every ten years in the future, which is not the case. Similarly, authors of this report recognize that in many communities needs are driven by population growth, and in the future total population will exceed the amount of water available due to infrastructure limitations, regardless of whether or not there is a drought. This implies that infrastructure limitations would constrain economic growth. However, since needs as defined by planning rules are based upon water supply and demand under the assumption of drought of record conditions, it improper to conduct economic analysis that focuses on growth related impacts over the planning horizon. Figures generated from such an analysis would presume a 50-year drought of record, which is unrealistic. Estimating lost economic activity related to constraints on population and commercial growth due to lack of water would require developing water supply and demand forecasts under "normal" or "most likely" future climatic conditions.

3. While useful for planning purposes, this study is not a benefit-cost analysis. Benefit cost analysis is a tool widely used to evaluate the economic feasibility of specific policies or projects as opposed to estimating economic impacts of unmet water needs. Nevertheless, one could include some impacts measured in this study as part of a benefit cost study if done so properly. Since this is not a benefit cost analysis, future impacts are not weighted differently. In other words, estimates are not discounted. If used as a measure of economic benefits, one should incorporate a measure of uncertainty into the analysis. In this type of analysis, a typical method of discounting future values is to assign probabilities of the drought of record recurring again in a given year, and weight monetary impacts accordingly. This analysis assumes a probability of one.

4. IO multipliers measure the strength of backward linkages to supporting industries (i.e., those who sell inputs to an affected sector). However, multipliers say nothing about forward linkages consisting of businesses that purchase goods from an affected sector for further processing. For example, ranchers in many areas sell most of their animals to local meat packers who process animals into a form that consumers ultimately see in grocery stores and restaurants. Multipliers do not capture forward linkages to meat packers, and since meat packers sell livestock purchased from ranchers as "final sales," multipliers for the ranching sector do fully account for all losses to a region's economy. Thus, as mentioned previously, in some cases closely linked sectors were moved from one water use category to another.

5. Cautions regarding interpretations of direct and secondary impacts are warranted. IO/SAM multipliers are based on "fixed-proportion production functions," which basically means that input use - including labor - moves in lockstep fashion with changes in levels of output. In a

scenario where output (i.e., sales) declines, losses in the immediate sector or supporting sectors could be much less than predicted by an IO/SAM model for several reasons. For one, businesses will likely expect to continue operating so they might maintain spending on inputs for future use; or they may be under contractual obligations to purchase inputs for an extended period regardless of external conditions. Also, employers may not lay-off workers given that experienced labor is sometimes scarce and skilled personnel may not be readily available when water shortages subside. Lastly people who lose jobs might find other employment in the region. As a result, direct losses for employment and secondary losses in sales and employment should be considered an upper bound. Similarly, since projected population losses are based on reduced employment in the region, they should be considered an upper bound as well.

6. IO models are static. Models and resultant multipliers are based upon the structure of the U.S. and regional economies in 2006. In contrast, water shortages are projected to occur well into the future. Thus, the analysis assumes that the general structure of the economy remains the same over the planning horizon, and the farther out into the future we go, this assumption becomes less reliable.

7. Impacts are annual estimates. If one were to assume that conditions persisted for more than one year, figures should be adjusted to reflect the extended duration. The drought of record in most regions of Texas lasted several years.

8. Monetary figures are reported in constant year 2006 dollars.

1.1.2 Impacts to Agriculture

Irrigated Crop Production

The first step in estimating impacts to irrigation required calculating gross sales for IMPLAN crop sectors. Default IMPLAN data do not distinguish irrigated production from dry-land production. Once gross sales were known other statistics such as employment and income were derived using IMPLAN direct multiplier coefficients. Gross sales for a given crop are based on two data sources:

1) county-level statistics collected and maintained by the TWDB and the USDA Farm Services Agency (FSA) including the number of irrigated acres by crop type and water application per acre, and

2) regional-level data published by the Texas Agricultural Statistics Service (TASS) including prices received for crops (marketing year averages), crop yields and crop acreages.

Crop categories used by the TWDB differ from those used in IMPLAN datasets. To maintain consistency, sales and other statistics are reported using IMPLAN crop classifications. Table 1 shows the TWDB crops included in corresponding IMPLAN sectors, and Table 2 summarizes acreage and estimated annual water use for each crop classification (five-year average from 2003-2007). Table 3 displays average (2003-2007) gross revenues per acre for IMPLAN crop categories.

Table 1: Crop Classifications Used in TWDB Water Use Survey and Corresponding IMPLAN Crop Sectors

IMPLAN Category	TWDB Category
Oilseeds	Soybeans and "other oil crops"
Grains	Grain sorghum, corn, wheat and "other grain crops"
Vegetable and melons	"Vegetables" and potatoes
Tree nuts	Pecans
Fruits	Citrus, vineyard and other orchard
Cotton	Cotton
Sugarcane and sugar beets	Sugarcane and sugar beets
All "other" crops	"Forage crops", peanuts, alfalfa, hay and pasture, rice and "all other crops"

Table 2: Summary of Irrigated Crop Acreage and Water Demand for the Region C Regional Water Planning Area (average 2003-2007)

Sector	Acres (1000s)	Distribution of acres	Water use (1000s of AF)	Distribution of water use
Oilseeds	<1	5%	<1	4%
Grains	1	14%	1	11%
Vegetable and melons	<1	2%	<1	1%
Tree nuts	<1	2%	<2	3%
Fruits	<1	2%	<3	1%
Cotton	<1	3%	<4	2%
All other crops	6	72%	9	78%
Total	9	100%	11	100%

Source: Water demand figures are a 5- year average (2003-2007) of the TWDB's annual Irrigation Water Use Estimates. Statistics for irrigated crop acreage are based upon annual survey data collected by the TWDB and the Farm Service Agency. Values do not include acreage or water use for the TWDB categories classified by the Farm Services Agency as "failed acres," "golf course" or "waste water."

Table 3: Average Gross Sales Revenues per Acre for Irrigated Crops for the Region C Regional Water Planning Area (2003-2007)		
IMPLAN Sector	**Gross revenues per acre**	**Crops included in estimates**
Grains	$213	Based on five-year (2003-2007) average weighted by acreage for “irrigated grain sorghum,” “irrigated corn”, “irrigated wheat” and “irrigated ‘other’ grain crops.”
Oilseed Farming	$400	Irrigated figure is based on five-year (2003-2007) average weighted by acreage for “irrigated soybeans” and “irrigated ‘other’ oil crops.”
Vegetable and melons	$6,111	Based on five-year (2003-2007) average weighted by acreage for “irrigated shallow and deep root vegetables”, “irrigated Irish potatoes” and “irrigated melons.”
Tree nuts	$3,435	Based on five-year (2003-2007) average weighted by acreage for “irrigated pecans.”
Fruits	$20,331	Based on five-year (2003-2007) average weighted by acreage for “irrigated citrus”, “irrigated vineyards” and “irrigated ‘other’ orchard.”
Cotton	$507	Based on five-year (2003-2007) average weighted by acreage for “irrigated cotton.”
All other crops	$227	Irrigated figure is based on five-year (2003-2007) average weighted by acreage for “irrigated ‘forage’ crops”, “irrigated peanuts”, “irrigated alfalfa”, “irrigated ‘hay’ and pasture” and “irrigated ‘all other’ crops.”

*Figures are rounded. Source: Based on data from the Texas Agricultural Statistics Service, Texas Water Development Board, and Texas A&M University.

An important consideration when estimating impacts to irrigation was determining which crops are affected by water shortages. One approach is the so-called rationing model, which assumes that farmers respond to water supply cutbacks by fallowing the lowest value crops in the region first and the highest valued crops last until the amount of water saved equals the shortage.[5] For example, if farmer A grows vegetables (higher value) and farmer B grows wheat (lower value) and they both face a proportionate cutback in irrigation water, then farmer B will sell water to farmer A. Farmer B will fallow her irrigated acreage before farmer A fallows anything. Of course, this assumes that farmers can and do transfer enough water to allow this to happen. A different approach involves constructing farm-level profit maximization models that conform to widely-accepted economic theory that farmers make decisions based on marginal net returns. Such models have good predictive capability, but data requirements and complexity are high. Given that a detailed analysis for each region would require a substantial amount of farm-level data and analysis, the following investigation assumes that projected shortages are distributed equally across predominant crops in the region. Predominant in this case are crops that comprise at least one percent of total acreage in the region.

The following steps outline the overall process used to estimate direct impacts to irrigated agriculture:

1. *Distribute shortages across predominant crop types in the region*. Again, unmet water needs were distributed equally across crop sectors that constitute one percent or more of irrigated acreage.

2. *Estimate associated reductions in output for affected crop sectors*. Output reductions are based on elasticities discussed previously and on estimated values per acre for different crops. Values per acre stem from the same data used to estimate output for the year 2006 baseline. Using multipliers, we then generate estimates of forgone income, jobs, and tax revenues based on reductions in gross sales and final demand.

Livestock

The approach used for the livestock sector is basically the same as that used for crop production. As is the case with crops, livestock categorizations used by the TWDB differ from those used in IMPLAN datasets, and TWDB groupings were assigned to a given IMPLAN sector (Table 4). Then we:

1) *Distribute projected water needs equally among predominant livestock sectors and estimate lost output*: As is the case with irrigation, shortages are assumed to affect all livestock sectors equally; however, the category of “other” is not included given its small size. If water needs were small relative to total demands, we assume that producers would haul in water by truck to fill stock tanks. The cost per acre-foot ($24,000) is based on 2008 rates charged by various water haulers in Texas, and assumes that the average truck load is 6,500 gallons at a hauling distance of 60 miles.

2) *Estimate reduced output in forward processors for livestock sectors*. Reductions in output for livestock sectors are assumed to have a proportional impact on forward processors in the region such as meat packers. In other words, if the cows were gone, meat-packing plants or fluid milk manufacturers) would likely have little to process. This is not an unreasonable premise. Since the

[5] The rationing model was initially proposed by researchers at the University of California at Berkeley, and was then modified for use in a study conducted by the U.S. Environmental Protection Agency that evaluated how proposed water supply cutbacks recommended to protect water quality in the Bay/Delta complex in California would affect farmers in the Central Valley. See, Zilberman, D., Howitt, R. and Sunding, D. “*Economic Impacts of Water Quality Regulations in the San Francisco Bay and Delt*a.” Western Consortium for Public Health. May 1993.

1950s, there has been a major trend towards specialized cattle feedlots, which in turn has decentralized cattle purchasing from livestock terminal markets to direct sales between producers and slaughterhouses. Today, the meat packing industry often operates large processing facilities near high concentrations of feedlots to increase capacity utilization.[6] As a result, packers are heavily dependent upon nearby feedlots. For example, a recent study by the USDA shows that on average meat packers obtain 64 percent of cattle from within 75 miles of their plant, 82 percent from within 150 miles and 92 percent from within 250 miles.[7]

Table 4: Description of Livestock Sectors

IMPLAN Category	**TWDB Category**
Cattle ranching and farming	Cattle, cow calf, feedlots and dairies
Poultry and egg production	Poultry production.
Other livestock	Livestock other than cattle and poultry (i.e., horses, goats, sheep, hogs)
Milk manufacturing	Fluid milk manufacturing, cheese manufacturing, ice cream manufacturing etc.
Meat packing	Meat processing present in the region from slaughter to final processing

1.1.3 Impacts to Municipal Water User Groups

Disaggregation of Municipal Water Demands

Estimating the economic impacts for the municipal water user groups is complicated for a number of reasons. For one, municipal use comprises a range of consumers including commercial businesses, institutions such as schools and government and households. However, reported water needs are not distributed among different municipal water users. In other words, how much of a municipal need is commercial and how much is residential (domestic)?

The amount of commercial water use as a percentage of total municipal demand was estimated based on "GED" coefficients (gallons per employee per day) published in secondary sources.[8] For example, if year 2006 baseline data for a given economic sector (e.g., amusement and recreation services) shows employment at 30 jobs and the GED coefficient is 200, then average daily water use by that sector is (30 x 200 = 6,000 gallons) or 6.7 acre-feet per year. Water not attributed to commercial use is considered

6 Ferreira, W.N. "*Analysis of the Meat Processing Industry in the United States*." Clemson University Extension Economics Report ER211, January 2003.

7 Ward, C.E. "*Summary of Results from USDA's Meatpacking Concentration Study*." Oklahoma Cooperative Extension Service, OSU Extension Facts WF-562.

8 Sources for GED coefficients include: Gleick, P.H., Haasz, D., Henges-Jeck, C., Srinivasan, V., Wolff, G. Cushing, K.K., and Mann, A. "*Waste Not, Want Not*: *The Potential for Urban Water Conservation in California*." Pacific Institute. November 2003. U.S. Bureau of the Census. 1982 Census of Manufacturers: Water Use in Manufacturing. USGPO, Washington D.C. See also: "*U.S. Army Engineer Institute for Water Resources, IWR Report 88-R-6.*," Fort Belvoir, VA. See also, Joseph, E. S., 1982, "*Municipal and Industrial Water Demands of the Western United States*." Journal of the Water Resources Planning and Management Division, Proceedings of the American Society of Civil Engineers, v. 108, no. WR2, p. 204-216. See also, Baumann, D. D., Boland, J. J., and Sims, J. H., 1981, "*Evaluation of Water Conservation for Municipal and Industrial Water Supply*." U.S. Army Corps of Engineers, Institute for Water Resources, Contract no. 82-C1.

domestic, which includes single and multi-family residential consumption, institutional uses and all use designated as "county-other." Based on our analysis, commercial water use is about 5 to 35 percent of municipal demand. Less populated rural counties occupy the lower end of the spectrum, while larger metropolitan counties are at the higher end.

After determining the distribution of domestic versus commercial water use, we developed methods for estimating impacts to the two groups.

Domestic Water Uses

Input output models are not well suited for measuring impacts of shortages for domestic water uses, which make up the majority of the municipal water use category. To estimate impacts associated with domestic water uses, municipal water demand and needs are subdivided into residential, and commercial and institutional use. Shortages associated with residential water uses are valued by estimating proxy demand functions for different water user groups allowing us to estimate the marginal value of water, which would vary depending upon the level of water shortages. The more severe the water shortage, the more costly it becomes. For instance, a 2 acre-foot shortage for a group of households that use 10 acre-feet per year would not be as severe as a shortage that amounted to 8 acre-feet. In the case of a 2 acre-foot shortage, households would probably have to eliminate some or all outdoor water use, which could have implicit and explicit economic costs including losses to the horticultural and landscaping industry. In the case of an 8 acre-foot shortage, people would have to forgo all outdoor water use and most indoor water consumption. Economic impacts would be much higher in the latter case because people, and would be forced to find emergency alternatives assuming alternatives were available.

To estimate the value of domestic water uses, TWDB staff developed marginal loss functions based on constant elasticity demand curves. This is a standard and well-established method used by economists to value resources such as water that have an explicit monetary cost.

A constant price elasticity of demand is estimated using a standard equation:

$$w = kc^{(-\varepsilon)}$$

where:

- w is equal to average monthly residential water use for a given water user group measured in thousands of gallons;
- k is a constant intercept;
- c is the average cost of water per 1,000 gallons; and
- ε is the price elasticity of demand.

Price elasticities (-0.30 for indoor water use and -0.50 for outdoor use) are based on a study by Bell et al.[9] that surveyed 1,400 water utilities in Texas that serve at least 1,000 people to estimate demand elasticity for several variables including price, income, weather etc. Costs of water and average use per month per household are based on data from the Texas Municipal League's annual water and wastewater rate surveys - specifically average monthly household expenditures on water and wastewater

[9] Bell, D.R. and Griffin, R.C. "*Community Water Demand in Texas as a Century is Turned*." Research contract report prepared for the Texas Water Development Board. May 2006.

in different communities across the state. After examining variance in costs and usage, three different categories of water user groups based on population (population less than 5,000, cities with populations ranging from 5,000 to 99,999 and cities with populations exceeding 100,000) were selected to serve as proxy values for municipal water groups that meet the criteria (Table 5).[10]

Table 5: Water Use and Costs Parameters Used to Estimated Water Demand Functions (average monthly costs per acre-foot for delivered water and average monthly use per household)				
Community Population	**Water**	**Wastewater**	**Total monthly cost**	**Avg. monthly use (gallons)**
Less than or equal to 5,000	$1,335	$1,228	$2,563	6,204
5,000 to 100,000	$1,047	$1,162	$2,209	7,950
Great than or equal to 100,000	$718	$457	$1,190	8,409
Source: Based on annual water and wastewater rate surveys published by the Texas Municipal League.				

As an example, Table 6 shows the economic impact per acre-foot of domestic water needs for municipal water user groups with population exceeding 100,000 people. There are several important assumptions incorporated in the calculations:

1) Reported values are net of the variable costs of treatment and distribution such as expenses for chemicals and electricity since using less water involves some savings to consumers and utilities alike; and for outdoor uses we do not include any value for wastewater.

2) Outdoor and “non-essential” water uses would be eliminated before indoor water consumption was affected, which is logical because most water utilities in Texas have drought contingency plans that generally specify curtailment or elimination of outdoor water use during droughts.[11] Determining how much water is used for outdoor purposes is based on several secondary sources. The first is a major study sponsored by the American Water Works Association, which surveyed cities in states including Colorado, Oregon, Washington, California, Florida and Arizona. On average across all cities surveyed 58 percent of single family residential water use was for outdoor activities. In cities with climates comparable to large metropolitan areas of Texas, the average was 40 percent.[12] Earlier findings of the U.S. Water Resources Council showed a national

[10] Ideally, one would want to estimate demand functions for each individual utility in the state. However, this would require an enormous amount of time and resources. For planning purposes, we believe the values generated from aggregate data are more than sufficient.

[11] In Texas, state law requires retail and wholesale water providers to prepare and submit plans to the Texas Commission on Environmental Quality (TCEQ). Plans must specify demand management measures for use during drought including curtailment of “non-essential water uses.” Non-essential uses include, but are not limited to, landscape irrigation and water for swimming pools or fountains. For further information see the Texas Environmental Quality Code §288.20.

[12] See, Mayer, P.W., DeOreo, W.B., Opitz, E.M., Kiefer, J.C., Davis, W., Dziegielewski, D., Nelson, J.O. “*Residential End Uses of Water*.” Research sponsored by the American Water Works Association and completed by Aquacraft, Inc. and Planning and Management Consultants, Ltd. (PMCL@CDM).

average of 33 percent. Similarly, the United States Environmental Protection Agency (USEPA) estimated that landscape watering accounts for 32 percent of total residential and commercial water use on annual basis.[13] A study conducted for the California Urban Water Agencies (CUWA) calculated average annual values ranging from 25 to 35 percent.[14] Unfortunately, there does not appear to be any comprehensive research that has estimated non-agricultural outdoor water use in Texas. As an approximation, an average annual value of 30 percent based on the above references was selected to serve as a rough estimate in this study.

3) As shortages approach 100 percent values become immense and theoretically infinite at 100 percent because at that point death would result, and willingness to pay for water is immeasurable. Thus, as shortages approach 80 percent of monthly consumption, we assume that households and non-water intensive commercial businesses (those that use water only for drinking and sanitation would have water delivered by tanker truck or commercial water delivery companies. Based on reports from water companies throughout the state, we estimate that the cost of trucking in water is around $21,000 to $27,000 per acre-feet assuming a hauling distance of between 20 to 60 miles. This is not an unreasonable assumption. The practice was widespread during the 1950s drought and recently during droughts in this decade. For example, in 2000 at the heels of three consecutive drought years Electra - a small town in North Texas - was down to its last 45 days worth of reservoir water when rain replenished the lake, and the city was able to refurbish old wells to provide supplemental groundwater. At the time, residents were forced to limit water use to 1,000 gallons per person per month - less than half of what most people use - and many were having water delivered to their homes by private contractors.[15] In 2003 citizens of Ballinger, Texas, were also faced with a dwindling water supply due to prolonged drought. After three years of drought, Lake Ballinger, which supplies water to more than 4,300 residents in Ballinger and to 600 residents in nearby Rowena, was almost dry. Each day, people lined up to get water from a well in nearby City Park. Trucks hauling trailers outfitted with large plastic and metal tanks hauled water to and from City Park to Ballinger.[16]

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[13] U.S. Environmental Protection Agency. *"Cleaner Water through Conservation*." USEPA Report no. 841-B-95-002. April, 1995.

[14] Planning and Management Consultants, Ltd. "*Evaluating Urban Water Conservation Programs: A Procedures Manual*." Prepared for the California Urban Water Agencies. February 1992.

[15] Zewe, C. "*Tap Threatens to Run Dry in Texas Town*." July 11, 2000. CNN Cable News Network.

[16] Associated Press, "*Ballinger Scrambles to Finish Pipeline before Lake Dries Up*." May 19, 2003.

Table 6: Economic Losses Associated with Domestic Water Shortages in Communities with Populations Exceeding 100,000 people						
Water shortages as a percentage of total monthly household demands	**No. of gallons remaining per household per day**	**No of gallons remaining per person per day**	**Economic loss (per acre-foot)**		**Economic loss (per gallon)**	
1%	278	93	$748		$0.00005	
5%	266	89	$812		$0.0002	
10%	252	84	$900		$0.0005	
15%	238	79	$999		$0.0008	
20%	224	75	$1,110		$0.0012	
25%	210	70	$1,235		$0.0015	
30%[a]	196	65	$1,699		$0.0020	
35%	182	61	$3,825		$0.0085	
40%	168	56	$4,181		$0.0096	
45%	154	51	$4,603		$0.011	
50%	140	47	$5,109		$0.012	
55%	126	42	$5,727		$0.014	
60%	112	37	$6,500		$0.017	
65%	98	33	$7,493		$0.02	
70%	84	28	$8,818		$0.02	
75%	70	23	$10,672		$0.03	
80%	56	19	$13,454		$0.04	
85%	42	14	$18,091	($24,000)[b]	$0.05	($0.07)[b]
90%	28	9	$27,363	($24,000)	$0.08	($0.07)
95%	14	5	$55,182	($24,000)	$0.17	($0.07)
99%	3	0.9	$277,728	($24,000)	$0.85	($0.07)
99.9%	1	0.5	$2,781,377	($24,000)	$8.53	($0.07)
100%	0	0	Infinite	($24,000)	Infinite	($0.07)

[a] The first 30 percent of needs are assumed to be restrictions of outdoor water use; when needs reach 30 percent of total demands all outdoor water uses would be restricted. Needs greater than 30 percent include indoor use

[b] As shortages approach 100 percent the value approaches infinity assuming there are not alternatives available; however, we assume that communities would begin to have water delivered by tanker truck at an estimated cost of $24,000 per acre-foot when shortages breached 85 percent.

Commercial Businesses

Effects of water shortages on commercial sectors were estimated in a fashion similar to other business sectors meaning that water shortages would affect the ability of these businesses to operate. This is particularly true for "water intensive" commercial sectors that are need large amounts of water (in addition to potable and sanitary water) to provide their services. These include:

- car-washes,
- laundry and cleaning facilities,
- sports and recreation clubs and facilities including race tracks,
- amusement and recreation services,
- hospitals and medical facilities,
- hotels and lodging places, and
- eating and drinking establishments.

A key assumption is that commercial operations would not be affected until water shortages were at least 50 percent of total municipal demand. In other words, we assume that residential water consumers would reduce water use including all non-essential uses before businesses were affected.

An example will illustrate the breakdown of municipal water needs and the overall approach to estimating impacts of municipal needs. Assume City A experiences an unexpected shortage of 50 acre-feet per year when their demands are 200 acre-feet per year. Thus, shortages are only 25 percent of total municipal use and residents of City A could eliminate needs by restricting landscape irrigation. City B, on the other hand, has a deficit of 150 acre-feet in 2020 and a projected demand of 200 acre-feet. Thus, total shortages are 75 percent of total demand. Emergency outdoor and some indoor conservation measures could eliminate 50 acre-feet of projected needs, yet 50 acre-feet would still remain. To eliminate" the remaining 50 acre-feet water intensive commercial businesses would have to curtail operations or shut down completely.

Three other areas were considered when analyzing municipal water shortages: 1) lost revenues to water utilities, 2) losses to the horticultural and landscaping industries stemming for reduction in water available for landscape irrigation, and 3) lost revenues and related economic impacts associated with reduced water related recreation.

Water Utility Revenues

Estimating lost water utility revenues was straightforward. We relied on annual data from the "*Water and Wastewater Rate Survey*" published annually by the Texas Municipal League to calculate an average value per acre-foot for water and sewer. For water revenues, average retail water and sewer rates multiplied by total water needs served as a proxy. For lost wastewater, total unmet needs were adjusted for return flow factor of 0.60 and multiplied by average sewer rates for the region. Needs reported as "county-other" were excluded under the presumption that these consist primarily of self-supplied water uses. In addition, 15 percent of water demand and needs are considered non-billed or "unaccountable" water that comprises things such as leakages and water for municipal government functions (e.g., fire departments). Lost tax receipts are based on current rates for the "miscellaneous gross receipts tax, "which the state collects from utilities located in most incorporated cities or towns in Texas. We do not include lost water utility revenues when aggregating impacts of municipal water shortages to regional and state levels to prevent double counting.

Horticultural and Landscaping Industry

The horticultural and landscaping industry, also referred to as the "green Industry," consists of businesses that produce, distribute and provide services associated with ornamental plants, landscape and garden supplies and equipment. Horticultural industries often face big losses during drought. For example, the recent drought in the Southeast affecting the Carolinas and Georgia horticultural and landscaping businesses had a harsh year. Plant sales were down, plant mortality increased, and watering costs increased. Many businesses were forced to close locations, lay off employees, and even file for bankruptcy. University of Georgia economists put statewide losses for the industry at around $3.2 billion during the 3-year drought that ended in 2008.[17] Municipal restrictions on outdoor watering play a significant role. During drought, water restrictions coupled with persistent heat has a psychological effect on homeowners that reduces demands for landscaping products and services. Simply put, people were afraid to spend any money on new plants and landscaping.

In Texas, there do not appear to be readily available studies that analyze the economic effects of water shortages on the industry. However, authors of this report believe negative impacts do and would result in restricting landscape irrigation to municipal water consumers. The difficulty in measuring them is two-fold. First, as noted above, data and research for these types of impacts that focus on Texas are limited; and second, economic data provided by IMPLAN do not disaggregate different sectors of the green industry to a level that would allow for meaningful and defensible analysis.[18]

Recreational Impacts

Recreational businesses often suffer when water levels and flows in rivers, springs and reservoirs fall significantly during drought. During droughts, many boat docks and lake beaches are forced to close, leading to big losses for lakeside business owners and local communities. Communities adjacent to popular river and stream destinations such as Comal Springs and the Guadalupe River also see their business plummet when springs and rivers dry up. Although there are many examples of businesses that have suffered due to drought, dollar figures for drought-related losses to the recreation and tourism industry are not readily available, and very difficult to measure without extensive local surveys. Thus, while they are important, economic impacts are not measured in this study.

Table 7 summarizes impacts of municipal water shortages at differing levels of magnitude, and shows the ranges of economic costs or losses per acre-foot of shortage for each level.

[17] Williams, D. *"Georgia landscapers eye rebound from Southeast drought."* Atlanta Business Chronicle, Friday, June 19, 2009

[18] Economic impact analyses prepared by the TWDB for 2006 regional water plans did include estimates for the horticultural industry. However, year 2000 and prior IMPLAN data were disaggregated to a finer level. In the current dataset (2006), the sector previously listed as "Landscaping and Horticultural Services" (IMPLAN Sector 27) is aggregated into "Services to Buildings and Dwellings" (IMPLAN Sector 458).

Table 7: Impacts of Municipal Water Shortages at Different Magnitudes of Shortages		
Water shortages as percent of total municipal demands	Impacts	Economic costs per acre-foot*
0-30%	✓ Lost water utility revenues ✓ Restricted landscape irrigation and non-essential water uses	$730 - $2,040
30-50%	✓ Lost water utility revenues ✓ Elimination of landscape irrigation and non-essential water uses ✓ Rationing of indoor use	$2,040 - $10,970
>50%	✓ Lost water utility revenues ✓ Elimination of landscape irrigation and non-essential water uses ✓ Rationing of indoor use ✓ Restriction or elimination of commercial water use ✓ Importing water by tanker truck	$10,970 - varies
*Figures are rounded		

1.1.4 Industrial Water User Groups

Manufacturing

Impacts to manufacturing were estimated by distributing water shortages among industrial sectors at the county level. For example, if a planning group estimates that during a drought of record water supplies in County A would only meet 50 percent of total annual demands for manufactures in the county, we reduced output for each sector by 50 percent. Since projected manufacturing demands are based on TWDB Water Uses Survey data for each county, we only include IMPLAN sectors represented in the TWBD survey database. Some sectors in IMPLAN databases are not part of the TWDB database given that they use relatively small amounts of water - primarily for on-site sanitation and potable purposes. To maintain consistency between IMPLAN and TWDB databases, Standard Industrial Classification (SIC) codes both databases were cross referenced in county with shortages. Non-matches were excluded when calculating direct impacts.

Mining

The process of mining is very similar to that of manufacturing. We assume that within a given county, shortages would apply equally to relevant mining sectors, and IMPLAN sectors are cross referenced with TWDB data to ensure consistency.

In Texas, oil and gas extraction and sand and gravel (aggregates) operations are the primary mining industries that rely on large volumes of water. For sand and gravel, estimated output reductions are straightforward; however, oil and gas is more complicated for a number of reasons. IMPLAN does not necessarily report the physical extraction of minerals by geographic local, but rather the sales revenues reported by a particular corporation.

For example, at the state level revenues for IMPLAN sector 19 (oil and gas extraction) and sector 27 (drilling oil and gas wells) totals $257 billion. Of this, nearly $85 billion is attributed to Harris County. However, only a very small fraction (less than one percent) of actual production takes place in the county. To measure actual potential losses in well head capacity due to water shortages, we relied on county level production data from the Texas Railroad Commission (TRC) and average well-head market prices for crude and gas to estimate lost revenues in a given county. After which, we used to IMPLAN ratios to estimate resultant losses in income and employment.

Other considerations with respect to mining include:

> 1) Petroleum and gas extraction industry only uses water in significant amounts for secondary recovery. Known in the industry as enhanced or water flood extraction, secondary recovery involves pumping water down injection wells to increase underground pressure thereby pushing oil or gas into other wells. IMPLAN output numbers do not distinguish between secondary and non-secondary recovery. To account for the discrepancy, county-level TRC data that show the proportion of barrels produced using secondary methods were used to adjust IMPLAN data to reflect only the portion of sales attributed to secondary recovery.
>
> 2) A substantial portion of output from mining operations goes directly to businesses that are classified as manufacturing in our schema. Thus, multipliers measuring backward linkages for a given manufacturer might include impacts to a supplying mining operation. Care was taken not to double count in such situations if both a mining operation and a manufacturer were reported as having water shortages.

Steam-electric

At minimum without adequate cooling water, power plants cannot safely operate. As water availability falls below projected demands, water levels in lakes and rivers that provide cooling water would also decline. Low water levels could affect raw water intakes and outfalls at electrical generating units in several ways. For one, power plants are regulated by thermal emission guidelines that specify the maximum amount of heat that can go back into a river or lake via discharged cooling water. Low water levels could result in permit compliance issues due to reduced dilution and dispersion of heat and subsequent impacts on aquatic biota near outfalls.[19] However, the primary concern would be a loss of head (i.e., pressure) over intake structures that would decrease flows through intake tunnels. This would affect safety related pumps, increase operating costs and/or result in sustained shut-downs. Assuming plants did shutdown, they would not be able to generate electricity.

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[19] Section 316 (b) of the Clean Water Act requires that thermal wastewater discharges do not harm fish and other wildlife.

Among all water use categories steam-electric is unique and cautions are needed when applying methods used in this study. Measured changes to an economy using input-output models stem directly from changes in sales revenues. In the case of water shortages, one assumes that businesses will suffer lost output if process water is in short supply. For power generation facilities this is true as well. However, the electric services sector in IMPLAN represents a corporate entity that may own and operate several electrical generating units in a given region. If one unit became inoperable due to water shortages, plants in other areas or generation facilities that do not rely heavily on water such as gas powered turbines might be able to compensate for lost generating capacity. Utilities could also offset lost production via purchases on the spot market.[20] Thus, depending upon the severity of the shortages and conditions at a given electrical generating unit, energy supplies for local and regional communities could be maintained. But in general, without enough cooling water, utilities would have to throttle back plant operations, forcing them to buy or generate more costly power to meet customer demands.

Measuring impacts end users of electricity is not part of this study as it would require extensive local and regional level analysis of energy production and demand. To maintain consistency with other water user groups, impacts of steam-electric water shortages are measured in terms of lost revenues (and hence income) and jobs associated with shutting down electrical generating units.

1.2 Social Impacts of Water Shortages

As the name implies, the effects of water shortages can be social or economic. Distinctions between the two are both semantic and analytical in nature – more so analytic in the sense that social impacts are harder to quantify. Nevertheless, social effects associated with drought and water shortages are closely tied to economic impacts. For example, they might include:

- demographic effects such as changes in population,
- disruptions in institutional settings including activity in schools and government,
- conflicts between water users such as farmers and urban consumers,
- health-related low-flow problems (e.g., cross-connection contamination, diminished sewage flows, increased pollutant concentrations),
- mental and physical stress (e.g., anxiety, depression, domestic violence),
- public safety issues from forest and range fires and reduced fire fighting capability,
- increased disease caused by wildlife concentrations,
- loss of aesthetic and property values, and
- reduced recreational opportunities.[21]

[20] Today, most utilities participate in large interstate "power pools" and can buy or sell electricity "on the grid" from other utilities or power marketers. Thus, assuming power was available to buy, and assuming that no contractual or physical limitations were in place such as transmission constraints; utilities could offset lost power that resulted from waters shortages with purchases via the power grid.

[21] Based on information from the website of the National Drought Mitigation Center at the University of Nebraska Lincoln. Available online at: http://www.drought.unl.edu/risk/impacts.htm. See also, Vanclay, F. "*Social Impact Assessment*." in Petts, J. (ed) International Handbook of Environmental Impact Assessment. 1999.

Social impacts measured in this study focus strictly on demographic effects including changes in population and school enrollment. Methods are based on demographic projection models developed by the Texas State Data Center and used by the TWDB for state and regional water planning. Basically, the social impact model uses results from the economic component of the study and assesses how changes in labor demand would affect migration patterns in a region. Declines in labor demand as measured using adjusted IMPLAN data are assumed to affect net economic migration in a given regional water planning area. Employment losses are adjusted to reflect the notion that some people would not relocate but would seek employment in the region and/or public assistance and wait for conditions to improve. Changes in school enrollment are simply the proportion of lost population between the ages of 5 and 17.

2. Results

Section 2 presents the results of the analysis at the regional level. Included are baseline economic data for each water use category, and estimated economics impacts of water shortages for water user groups with reported deficits. According to the 2011 *Region C Regional Water Plan*, during severe drought irrigation, municipal, manufacturing, mining and steam-electric water user groups would experience water shortages in the absence of new water management strategies.

2.1 Overview of Regional Economy

On an annual basis, the Region C economy generates $344 billion worth of gross state product for Texas ($315 billion in income and $29 billion in business taxes) and supports nearly 3,900,000 jobs (Table 8). Generating about $78 billion in gross state product, manufacturing is the region's primary base economic sector.[22] Municipal sectors also generate substantial amounts of income and are major employers; however, some businesses that make up the municipal category such as restaurants and retail stores are non-basic industries meaning they exist to provide services to people who work would in base industries. In other words, without base industries, many jobs categorized as municipal would not exist.

[22] Base industries are those that supply markets outside of the region. These industries are crucial to the local economy and are called the economic base of a region. Appendix A shows how IMPLAN's 529 sectors were allocated to water use category, and shows economic data for each sector.

Table 8: The Region C Economy by Water User Group ($millions)*						
Water Use Category	**Total sales**	**Intermediate sales**	**Final sales**	**Jobs**	**Income**	**Business taxes**
Irrigation	$7.71	$3.09	$4.61	177	$4.40	$0.16
Livestock	$3,860.96	$1,435.64	$2,425.32	21,867	$558.66	$37.19
Manufacturing	$163,251.69	$32,182.31	$131,069.38	542,577	$50,133.52	$1,145.29
Mining	$28,274.78	$22,607.16	$5,667.62	34,320	$15,940.86	$1,663.13
Steam-electric	$8,654.46	$2,434.69	$6,219.77	6,466	$6,025.07	$1,010.07
Municipal	$423,915.66	$147,185.49	$276,730.16	3,290,232	$242,603.31	$25,304.51
Regional total	$627,965.26	$205,848.38	$422,116.86	3,895,639	$315,265.82	$29,160.35

[a] Appendix 1 displays data for individual IMPLAN sectors that make up each water use category. Based on data from the Texas Water Development Board, and year 2006 data from the Minnesota IMPLAN Group, Inc.

2.2 Impacts of Agricultural Water Shortages

According to the 2011 *Region C Regional Water Plan*, during severe drought the counties of Cooke, Dallas, Rockwall, Tarrant and Wise would experiences shortages of irrigation water ranging anywhere from 18 to 77 percent of annual irrigation demands. Shortages of these magnitudes would reduce gross state product (income plus state and local business taxes) by around $1 million in each decade (Table 9).

Table 9: Economic Impacts of Water Shortages for Irrigation Water User Groups ($millions)			
Decade	**Lost income from reduced crop production [a]**	**Lost state and local tax revenues from reduced crop production**	**Lost jobs from reduced crop production**
2010	$1.05	$0.12	14
2020	$1.19	$0.12	16
2030	$1.15	$0.11	15
2040	$1.09	$0.11	14
2050	$1.00	$0.11	13
2060	$0.90	$0.10	12

*Changes to income and business taxes are collectively equivalent to a decrease in gross state product, which is analogous to gross domestic product measured at the state rather than national level. Appendix 2 shows results by water user group.

2.3 Impacts of Municipal Water Shortages

Water shortages are projected to occur in a significant number of communities throughout Region C, and deficits range anywhere from 1 to 100 percent of total annual water demands. At the regional level, the estimated economic value of domestic water shortages totals $346 million in 2010 and $11,737 million in 2060 (Table 10). Due to curtailment of commercial business activity, municipal shortages would also reduce gross state product (income plus taxes) by $96 million in 2010 and $2,748 million in 2060.

Table 10: Economic Impacts of Water Shortages for Municipal Water User Groups ($millions)

Decade	Monetary value of domestic water shortages	Lost income from reduced commercial business activity*	Lost state and local taxes from reduced commercial business activity	Lost jobs from reduced commercial business activity	Lost water utility revenues
2010	$346.31	$85.91	$9.87	2,095	$225.75
2020	$1,492.61	$272.27	$31.31	6,690	$900.47
2030	$2,804.18	$845.38	$95.13	20,419	$1,519.26
2040	$5,307.37	$1,339.20	$151.68	31,553	$2,113.14
2050	$8,700.20	$1,865.40	$213.87	45,026	$2,769.05
2060	$11,737.26	$2,465.29	$283.31	60,115	$3,517.86

*Changes to Income and business taxes are collectively equivalent to a decrease in gross state product, which is analogous to gross domestic product measured at the state rather than national level. Appendix 2 shows results by water user group.

2.4 Impacts of Manufacturing Water Shortages

Manufacturing water shortages are projected to occur in Collin, Cooke, Dallas, Denton, Fannin, Grayson, Kaufman, Navarro, Parker, Rockwall, Tarrant and Wise counties. Projected shortages would reduce gross state product (income plus taxes) by an estimated $1,727 million in 2020 and $41,635 million in 2060 (Table 11).

Table 11: Economic Impacts of Water Shortages for Manufacturing Water User Groups ($millions)			
Decade	**Lost income due to reduced manufacturing output**	**Lost state and local business tax revenues due to reduced manufacturing output**	**Lost jobs due to reduced manufacturing output**
2010	$1,727.43	$52.69	18,574
2020	$3,684.34	$142.69	39,939
2030	$8,992.70	$338.56	96,637
2040	$14,303.11	$648.43	158,082
2050	$18,482.65	$863.42	204,992
2060	$41,635.86	$2,044.25	460,603

*Changes to Income and business taxes are collectively equivalent to a decrease in gross state product, which is analogous to gross domestic product measured at the state rather than national level. Appendix 2 shows results by water user group.

2.5 Impacts of Mining Water Shortages

Mining water shortages are projected to occur in Collin, Cooke, Dallas, Jack, Parker and Wise counties, and would primarily affect the extraction of natural gas in the Barnett Shale formation. Combined shortages for each county would result in estimated losses in gross state product totaling $589 million dollars in 2010 and about $3,053 million 2060 (Table 12).

Table 12: Economic Impacts of Water Shortages for Mining Water User Groups ($millions)			
Decade	**Lost income due to reduced mining output**	**Lost state and local business tax revenues due to reduced mining output**	**Lost jobs due to reduced mining output**
2010	$521.53	$66.82	3,125
2020	$531.81	$68.13	3,187
2030	$1,480.02	$189.61	8,870
2040	$1,904.92	$244.05	11,416
2050	$2,327.40	$298.18	13,948
2060	$2,708.22	$346.96	16,230

*Changes to Income and business taxes are collectively equivalent to a decrease in gross state product, which is analogous to gross domestic product measured at the state rather than national level. Appendix 2 shows results by water user group.

2.6 Impacts of Steam-electric Water Shortages

Water shortages for electrical generating units are projected in the counties of Dallas, Ellis, Fannin, Freestone, Henderson, Navarro, Parker, Tarrant, and Wise, and would result in estimated losses of gross state product totaling $784 million dollars in 2020, and $3,294 billion in 2060 (Table 13).

Table 13: Economic Impacts of Water Shortages for Steam-electric Water User Groups ($millions)			
Decade	**Lost income due to reduced electrical generation**	**Lost state and local business tax revenues due to reduced electrical generation**	**Lost jobs due to reduced electrical generation**
2010	$0.00	$0.00	0
2020	$686.17	$98.49	2,333
2030	$1,563.83	$224.46	5,316
2040	$1,697.76	$243.69	5,771
2050	$2,064.22	$296.29	6,956
2060	$2,910.26	$384.92	9,716

*Changes to Income and business taxes are collectively equivalent to a decrease in gross state product, which is analogous to gross domestic product measured at the state rather than national level. Appendix 2 shows results by water user group.

2.7 Social Impacts of Water Shortages

As discussed previously, estimated social impacts focus on changes in population and school enrollment in the region. In 2010, estimated population losses total 33,019 with corresponding reductions in school enrollment of 10,348 students (Table 14). In 2060, population would decline by 796,606 and school enrollment would fall by 241,468.

Table 14: Social Impacts of Water Shortages (2010-2060)		
Year	**Population Losses**	**Declines in School Enrollment**
2010	33,019	10,348
2020	74,375	24,340
2030	190,664	64,415
2040	301,075	102,345
2050	394,560	134,283
2060	796,606	271,468

2.8 Distribution of Impacts by Major River Basin

Administrative rules require that impacts are presented by both planning region and major river basin. To meet rule requirements, impacts were allocated among basins based on the distribution of water shortages in relevant basins. For example, if 50 percent of water shortages in River Basin A and 50 percent occur in River Basin B, then impacts were split equally among the two basins. Table 15 displays the results.

Table 15: Distribution of Impacts by Major River Basin (2010-2060)

River Basin	2010	2020	2030	2040	2050	2060
Brazos	4%	<1%	<1%	<1%	<1%	<1%
Red	7%	3%	3%	2%	2%	2%
Sabine	1%	1%	1%	1%	1%	1%
Sulphur	0%	0%	0%	0%	0%	0%
Trinity	89%	96%	96%	97%	97%	97%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Appendix 1: Economic Data for Individual IMPLAN Sectors

Economic Data for Agricultural Water User Groups ($millions)									
Water Use Category	**IMPLAN Sector**	**IMPLAN Code**	**Total Sales**	**Intermediate Sales**	**Final Sales**	**Jobs**	**Income**	**Business Taxes**
Irrigation	Oilseed Farming	1	$0.09	$0.00	$0.09	3	$0.05	$0.00
Irrigation	Grain Farming	2	$0.49	$0.10	$0.37	26	$0.23	$0.01
Irrigation	Vegetable and Melon Farming	3	$0.76	$0.07	$0.71	14	$0.55	$0.01
Irrigation	Tree Nut Farming	4	$0.69	$0.38	$0.35	12	$0.48	$0.02
Irrigation	Fruit Farming	5	$4.12	$1.38	$2.73	102	$2.34	$0.09
Irrigation	Cotton Farming	8	$0.11	0	$0.11	2	$0.04	$0.00
Irrigation	All “Other” Crop Farming	10	$1.45	$1.16	4.25	18	$0.71	$0.03
	Total irrigation	**NA**	**$7.71**	**$3.09**	**$4.61**	**177**	**$4.40**	**$0.16**
Livestock	Meat processed from carcasses	68	$1,352.81	$399.10	$953.71	2,942	$199.12	$10.26
Livestock	Fluid milk manufacturing	62	$891.20	$214.40	$676.79	1,477	$110.41	$6.67
Livestock	Cattle ranching and farming	11	$584.78	$405.49	$179.30	12,501	$46.20	$12.29
Livestock	Poultry processing	70	$368.80	$117.34	$251.46	1,536	$74.04	$2.62
Livestock	Ice cream and frozen dessert manufacturing	66	$297.20	$155.74	$141.45	586	$70.16	$2.41
Livestock	Animal- except poultry- slaughtering	67	$238.30	$63.72	$174.59	597	$33.59	$1.75
Livestock	Animal production- except cattle and poultry	13	$37.97	$32.19	$5.77	2,002	$3.69	$0.59
Livestock	Rendering and meat byproduct processing	69	$37.50	$20.81	$16.69	68	$9.91	$0.27
Livestock	Cheese manufacturing	64	$20.48	$8.48	$12.00	26	$2.44	$0.21
Livestock	Poultry and egg production	12	$19.90	$15.60	$4.30	116	$6.70	$0.07
Livestock	Dry- condensed- and evaporated dairy products	65	$11.67	$2.73	$8.93	15	$2.32	$0.07
Livestock	Creamery butter manufacturing	63	$0.36	$0.04	$0.32	1	$0.10	$0.00
	Total livestock	**NA**	**$3,860.96**	**$1,435.64**	**$2,425.32**	**21,867**	**$558.66**	**$37.19**
	Total agriculture	**NA**	**$3,868.67**	**$1,438.73**	**$2,429.93**	**22,044**	**$563.06**	**$37.35**
Based on year 2006 data from the Minnesota IMPLAN Group, Inc.									

Economic Data for Mining and Steam-electric Water User Groups ($millions)								
Water Use Category	**IMPLAN Sector**	**IMPLAN Code**	**Total Sales**	**Intermediate Sales**	**Final Sales**	**Jobs**	**Income**	**Business Taxes**
Mining	Oil and gas extraction	19	$24,032.96	$22,319.11	$1,713.85	24,280	$13,816.17	$1,465.13
Mining	Drilling oil and gas wells	27	$2,724.52	$13.60	$2,710.92	3,713	$935.87	$123.47
Mining	Support activities for oil and gas operations	28	$1,062.25	$147.54	$914.70	4,774	$962.37	$44.35
Mining	Coal mining	20	$209.71	$78.59	$131.13	387	$90.69	$24.15
Mining	Sand- gravel- clay- and refractory mining	25	$137.41	$14.50	$122.91	817	$80.84	$3.89
Mining	Stone mining and quarrying	24	$55.02	$5.66	$49.36	189	$32.48	$0.38
Mining	Gold- silver- and other metal ore mining	23	$50.24	$28.06	$22.18	146	$21.18	$1.70
Mining	Support activities for other mining	29	$2.07	$0.03	$2.03	11	$0.99	$0.04
Mining	Other nonmetallic mineral mining	26	$0.61	$0.06	$0.55	3	$0.27	$0.02
	Total mining	**NA**	$28,274.78	$22,607.16	$5,667.62	34,320	$15,940.86	$1,663.13
Steam-electric	**Power generation and supply**	**30**	$8,654.46	$2,434.69	$6,219.77	6,466	$6,025.07	$1,010.07
Based on year 2006 data from the Minnesota IMPLAN Group, Inc.								

Economic Data for Manufacturing Water User Groups ($millions)								
Water Use Category	**IMPLAN Sector**	**IMPLAN Code**	**Total Sales**	**Intermediate Sales**	**Final Sales**	**Jobs**	**Income**	**Business Taxes**
Manufacturing	Semiconductors and related device manufacturing	311	$17,883.07	$9,517.85	$8,365.22	21,031	$3,031.71	$85.27
Manufacturing	Aircraft manufacturing	351	$12,724.60	$647.36	$12,077.23	23,784	$2,773.58	$56.22
Manufacturing	New residential 1-unit structures- all	33	$12,192.79	$0.01	$12,192.77	78,212	$4,341.43	$68.36
Manufacturing	Automobile and light truck manufacturing	344	$8,633.03	$9.23	$8,623.80	5,840	$1,115.69	$35.11
Manufacturing	Commercial and institutional buildings	38	$7,056.63	$0.00	$7,056.63	68,185	$3,718.33	$45.86
Manufacturing	Petrochemical manufacturing	147	$6,516.32	$2,985.57	$3,530.75	691	$1,389.06	$78.36
Manufacturing	Telephone apparatus manufacturing	306	$5,514.62	$135.06	$5,379.56	6,228	$911.29	$29.20
Manufacturing	Pharmaceutical and medicine manufacturing	160	$4,484.14	$819.47	$3,664.67	3,875	$1,717.01	$39.14
Manufacturing	Broadcast and wireless communications equipment	307	$3,456.68	$819.43	$2,637.25	6,035	$677.16	$16.82
Manufacturing	Other new construction	41	$3,094.82	-$0.01	$3,094.82	31,277	$1,724.78	$13.58
Manufacturing	Motor vehicle parts manufacturing	350	$3,017.42	$242.64	$2,774.78	8,492	$655.48	$10.48
Manufacturing	Other aircraft parts and equipment	353	$2,086.41	$352.75	$1,733.67	8,006	$848.20	$9.91
Manufacturing	New residential additions and alterations-all	35	$1,751.98	$0.01	$1,751.96	9,310	$688.01	$9.72
Manufacturing	Search- detection- and navigation instruments	314	$1,725.14	$572.11	$1,153.03	4,974	$630.82	$8.46
Manufacturing	Toilet preparation manufacturing	166	$1,618.51	$174.78	$1,443.73	1,936	$663.96	$5.32
Manufacturing	All other electronic component manufacturing	312	$1,585.44	$908.53	$676.91	6,523	$567.79	$9.69
Manufacturing	Oil and gas field machinery and equipment	261	$1,580.89	$58.87	$1,522.02	4,249	$420.20	$8.81
Manufacturing	Highway- street- bridge- and tunnel construct	39	$1,519.64	-$0.01	$1,519.65	13,201	$796.34	$10.16
Manufacturing	Polish and other sanitation good manufacturing	164	$1,462.78	$510.91	$951.87	1,299	$483.10	$10.56
Manufacturing	Soft drink and ice manufacturing	85	$1,457.52	$81.41	$1,376.11	2,153	$289.69	$12.83
Manufacturing	Paint and coating manufacturing	161	$1,451.80	$18.47	$1,433.34	2,195	$371.35	$9.52
Manufacturing	Commercial printing	139	$1,415.64	$703.33	$712.32	15,035	$1,014.05	$12.53
Manufacturing	New multifamily housing structures- all	34	$1,364.15	$0.00	$1,364.15	11,365	$670.65	$3.88
Manufacturing	Fabricated structural metal manufacturing	233	$1,352.19	$70.02	$1,282.17	3,904	$632.61	$10.19
Manufacturing	AC- refrigeration- and forced air heating	278	$1,325.37	$0.01	$1,325.36	3,751	$381.64	$9.72
Manufacturing	Paperboard container manufacturing	126	$1,282.25	$13.58	$1,268.68	3,874	$369.68	$14.61
Manufacturing	**All other manufacturing**		**$53,156.19**	**$12,406.82**	**$40,749.38**	**188,795**	**$18,334.90**	**$501.87**
Manufacturing	**Total manufacturing**		**$163,251.69**	**$32,182.31**	**$131,069.38**	**542,577**	**$50,133.52**	**$1,145.29**
Based on year 2006 data from the Minnesota IMPLAN Group, Inc.								

Economic Data for Municipal Water User Groups ($millions)								
Water Use Category	**IMPLAN Sector**	**IMPLAN Code**	**Total Sales**	**Intermediate Sales**	**Final Sales**	**Jobs**	**Income**	**Business Taxes**
Municipal	Real estate	431	$41,926.53	$16,596.78	$25,329.75	201,672	$24,255.36	$5,168.19
Municipal	Wholesale trade	390	$40,453.81	$19,367.80	$21,086.01	186,772	$21,307.13	$5,974.29
Municipal	Telecommunications	422	$22,005.88	$7,558.61	$14,447.27	47,935	$9,818.31	$1,643.69
Municipal	Owner-occupied dwellings	509	$21,610.21	-$0.01	$21,610.21	0	$16,740.73	$2,555.29
Municipal	Food services and drinking places	481	$12,568.80	$1,605.02	$10,963.78	230,766	$5,669.34	$662.87
Municipal	Offices of physicians- dentists- and other he	465	$12,342.10	$0.00	$12,342.10	91,807	$8,855.14	$77.71
Municipal	Monetary authorities and depository credit in	430	$12,277.06	$4,043.49	$8,233.57	43,852	$8,621.13	$157.06
Municipal	Insurance carriers	427	$12,053.71	$3,514.83	$8,538.88	48,476	$4,290.72	$532.71
Municipal	Non-depository credit intermediation and related	425	$11,113.88	$6,803.82	$4,310.05	61,732	$6,663.38	$510.28
Municipal	State & Local Education	503	$10,963.07	$0.01	$10,963.06	236,402	$10,963.07	$0.00
Municipal	Securities- commodity contracts- investments	426	$10,961.07	$7,279.17	$3,681.91	87,519	$4,200.04	$124.11
Municipal	Hospitals	467	$9,181.70	$0.01	$9,181.69	68,129	$5,350.17	$68.33
Municipal	Air transportation	391	$8,786.01	$978.57	$7,807.44	35,041	$3,126.71	$393.92
Municipal	Legal services	437	$6,724.26	$4,267.61	$2,456.65	42,259	$4,350.62	$134.88
Municipal	Truck transportation	394	$6,476.55	$3,506.87	$2,969.69	48,326	$3,022.32	$68.53
Municipal	Management consulting services	444	$6,413.72	$4,937.10	$1,476.61	43,063	$3,501.26	$27.27
Municipal	Architectural and engineering services	439	$6,397.77	$4,032.94	$2,364.84	47,543	$3,609.95	$29.86
Municipal	Motor vehicle and parts dealers	401	$5,868.69	$638.16	$5,230.53	48,282	$3,055.24	$864.39
Municipal	Cable networks and program distribution	421	$5,365.14	$1,273.73	$4,091.41	4,694	$2,106.45	$116.32
Municipal	General merchandise stores	410	$5,345.06	$563.36	$4,781.70	73,341	$2,631.48	$837.89
Municipal	Data processing services	424	$5,300.53	$1,087.58	$4,212.94	18,949	$2,949.85	$38.23
Municipal	Insurance agencies- brokerages- and related	428	$4,902.58	$2,876.96	$2,025.62	31,944	$4,158.03	$26.10
Municipal	Office administrative services	452	$4,849.52	$2,157.39	$2,692.12	21,065	$2,819.20	$48.33
Municipal	Management of companies and enterprises	451	$4,807.00	$4,520.54	$286.46	22,983	$2,884.35	$46.04
Municipal	All other miscellaneous professional and tech	450	$4,552.54	$4,064.62	$487.92	7,740	$1,868.15	$37.44
Municipal	State & Local Non-Education	504	$4,539.77	-$0.01	$4,539.77	69,130	$4,539.77	$0.00
Municipal	All other municipal	NA	$106,627.03	$37,039.23	$69,587.80	1,224,880	$57,128.47	$4,995.02
Municipal	**Total**		**$423,915.66**	**$147,185.49**	**$276,730.16**	**3,290,232**	**$242,603.31**	**$25,304.51**

Based on year 2006 data from the Minnesota IMPLAN Group, Inc.

Appendix 2: Impacts by Water User Group

Irrigation ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Cooke County						
Reduced income from curtailed crop production	$0.04	$0.04	$0.04	$0.04	$0.04	$0.04
Reduced business taxes from curtailed crop production	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Reduced jobs from curtailed crop production	1	1	1	1	1	1
Dallas County						
Reduced income from curtailed crop production	$0.32	$0.33	$0.34	$0.35	$0.36	$0.37
Reduced business taxes from curtailed crop production	$0.04	$0.04	$0.04	$0.04	$0.04	$0.04
Reduced jobs from curtailed crop production	4	4	4	5	5	5
Ellis County						
Reduced income from curtailed crop production	$0.25	$0.25	$0.25	$0.25	$0.25	$0.25
Reduced business taxes from curtailed crop production	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
Reduced jobs from curtailed crop production	3	3	3	3	3	3
Grayson County						
Reduced income from curtailed crop production	$0.00	$0.00	$0.00	$0.00	$0.00	$0.03
Reduced business taxes from curtailed crop production	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Reduced jobs from curtailed crop production	0	0	0	0	0	0
Kaufman County						
Reduced income from curtailed crop production	$0.00	$0.18	$0.21	$0.18	$0.11	$0.00
Reduced business taxes from curtailed crop production	$0.00	$0.01	$0.01	$0.01	$0.00	$0.00
Reduced jobs from curtailed crop production	0	2	3	2	1	0

Irrigation cont. ($millions)						
	2010	2020	2030	2040	2050	2060
Rockwall County						
Reduced income from curtailed crop production	$0.10	$0.10	$0.10	$0.10	$0.10	$0.10
Reduced business taxes from curtailed crop production	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01
Reduced jobs from curtailed crop production	1	1	1	1	1	1
Tarrant County						
Reduced income from curtailed crop production	$0.34	$0.28	$0.21	$0.17	$0.14	$0.11
Reduced business taxes from curtailed crop production	$0.04	$0.03	$0.02	$0.02	$0.02	$0.01
Reduced jobs from curtailed crop production	5	4	3	2	2	1
Wise County						
Reduced income from curtailed crop production	$0.00	$0.00	$0.00	$0.00	$0.001	$0.002
Reduced business taxes from curtailed crop production	$0.00	$0.00	$0.00	$0.00	$0.000	$0.000
Reduced jobs from curtailed crop production	0	0	0	0	0	0

Manufacturing ($millions)						
	2010	2020	2030	2040	2050	2060
Collin County						
Reduced income from reduced manufacturing output	$0.00	$109.57	$195.68	$545.07	$697.54	$833.03
Reduced business taxes from reduced manufacturing output	$0.00	$5.64	$10.07	$28.04	$35.89	$42.86
Reduced jobs from reduced manufacturing output	0	924	1,649	4,595	5,880	7,022
Cooke County						
Reduced income from reduced manufacturing output	$407.18	$467.43	$520.38	$573.33	$618.98	$677.41
Reduced business taxes from reduced manufacturing output	$15.95	$18.31	$20.39	$22.46	$24.25	$26.54
Reduced jobs from reduced manufacturing output	4,488	5,152	5,736	6,320	6,823	7,467
Dallas County						
Reduced income from reduced manufacturing output	$1,128.26	$1,960.42	$5,283.97	$6,613.32	$8,095.26	$18,291.17
Reduced business taxes from reduced manufacturing output	$31.64	$54.98	$148.19	$185.47	$227.03	$512.98
Reduced jobs from reduced manufacturing output	12,086	21,000	56,601	70,841	86,715	195,932
Denton County						
Reduced income from reduced manufacturing output	$55.58	$180.04	$565.50	$761.25	$990.84	$2,583.43
Reduced business taxes from reduced manufacturing output	$3.56	$11.53	$36.20	$48.73	$63.43	$165.38
Reduced jobs from reduced manufacturing output	416	1,346	4,228	5,691	7,408	19,315
Ellis County						
Reduced income from reduced manufacturing output	$0.00	$0.00	$0.00	$0.00	$11.71	$48.07
Reduced business taxes from reduced manufacturing output	$0.00	$0.00	$0.00	$0.00	$0.47	$1.95
Reduced jobs from reduced manufacturing output	0	0	0	0	183	751
Fannin County						
Reduced income from reduced manufacturing output	$0.00	$0.00	$0.00	$0.00	$2.52	$6.52
Reduced business taxes from reduced manufacturing output	$0.00	$0.00	$0.00	$0.00	$0.05	$0.13
Reduced jobs from reduced manufacturing output	0	0	0	0	29	75
Grayson County						
Reduced income from reduced manufacturing output	$0.00	$136.88	$401.32	$524.22	$648.48	$1,626.15
Reduced business taxes from reduced manufacturing output	$0.00	$3.40	$9.96	$13.00	$16.09	$40.34
Reduced jobs from reduced manufacturing output	0	1,302	3,818	4,987	6,169	15,470

Manufacturing cont. ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Kaufman County						
Reduced income from reduced manufacturing activity	$0.00	$0.00	$3.80	$18.56	$32.25	$44.11
Reduced business taxes from reduced manufacturing activity	$0.00	$0.00	$0.11	$0.54	$0.94	$1.28
Reduced jobs from reduced manufacturing activity	0	0	35	170	295	404
Navarro County						
Reduced income from reduced manufacturing activity	$0.00	$19.37	$54.97	$91.01	$262.67	$351.43
Reduced business taxes from reduced manufacturing activity	$0.00	$0.52	$1.47	$2.44	$7.03	$9.41
Reduced jobs from reduced manufacturing activity	0	187	532	881	2,542	3,401
Parker County						
Reduced income from reduced manufacturing activity	$136.42	$198.47	$504.61	$599.51	$685.29	$784.75
Reduced business taxes from reduced manufacturing activity	$1.54	$2.24	$2.85	$3.39	$3.87	$8.86
Reduced jobs from reduced manufacturing activity	1,584	2,305	5,861	6,963	7,960	9,115
Rockwall County						
Reduced income from reduced manufacturing activity	$0.00	$3.73	$11.95	$14.94	$20.91	$25.39
Reduced business taxes from reduced manufacturing activity	$0.00	$0.22	$0.35	$0.44	$0.61	$0.74
Reduced jobs from reduced manufacturing activity	0	39	125	156	218	265
Tarrant County						
Reduced income from reduced manufacturing activity	$0.00	$599.91	$1,411.61	$4,502.05	$6,334.29	$16,154.4
Reduced business taxes from reduced manufacturing activity	$0.00	$45.37	$106.77	$340.51	$479.09	$1,221.84
Reduced jobs from reduced manufacturing activity	0	7,306	17,191	54,829	77,143	196,739
Wise County						
Reduced income from reduced manufacturing activity	$0.00	$8.52	$38.89	$59.85	$81.91	$209.95
Reduced business taxes from reduced manufacturing activity	$0.00	$0.48	$2.21	$3.41	$4.66	$11.95
Reduced jobs from reduced manufacturing activity	0	377	861	2,650	3,627	4,649

Mining ($millions)						
	2010	2020	2030	2040	2050	2060
Collin County						
Reduced income from reduced mining activity	$0.02	$0.65	$1.00	$1.23	$1.44	$1.57
Reduced business taxes from reduced mining activity	$0.00	$0.08	$0.13	$0.16	$0.18	$0.20
Reduced jobs from reduced mining activity	0	4	6	7	9	9
Cooke County						
Reduced income from reduced mining activity	$1.74	$9.17	$6.25	$6.58	$6.90	$7.18
Reduced business taxes from reduced mining activity	$0.22	$1.17	$0.80	$0.84	$0.88	$0.92
Reduced jobs from reduced mining activity	10	55	37	39	41	43
Dallas County						
Reduced income from reduced mining activity	$17.37	$18.75	$18.52	$18.52	$18.52	$18.52
Reduced business taxes from reduced mining activity	$2.22	$2.40	$2.37	$2.37	$2.37	$2.37
Reduced jobs from reduced mining activity	104	112	111	111	111	111
Jack County						
Reduced income from reduced mining activity	$15.70	$15.24	$14.77	$14.77	$14.77	$14.77
Reduced business taxes from reduced mining activity	$2.01	$1.95	$1.89	$1.89	$1.89	$1.89
Reduced jobs from reduced mining activity	94	91	89	89	89	89
Parker County						
Reduced income from reduced mining activity	$350.93	$0.00	$0.12	$0.00	$0.16	$0.09
Reduced business taxes from reduced mining activity	$44.96	$0.00	$0.01	$0.00	$0.02	$0.01
Reduced jobs from reduced mining activity	2,103	0	1	0	1	1
Wise County						
Reduced income from reduced mining activity	$135.78	$488.00	$1,439.36	$1,863.83	$2,285.60	$2,666.07
Reduced business taxes from reduced mining activity	$17.40	$62.52	$184.40	$238.79	$292.82	$341.57
Reduced jobs from reduced mining activity	814	2,925	8,626	11,170	13,698	15,978

Steam-electric ($millions)						
	2010	2020	2030	2040	2050	2060
Dallas County						
Reduced income from reduced electrical generation	$0.00	$0.00	$63.94	$80.75	$69.64	$115.67
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$9.18	$11.59	$10.00	$16.60
Reduced jobs from reduced electrical generation	0	0	217	274	237	393
Ellis County						
Reduced income from reduced electrical generation	$0.00	$0.00	$0.00	$7.37	$237.90	$457.02
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$0.00	$1.06	$34.15	$65.60
Reduced jobs from reduced electrical generation	0	0	0	25	809	1,554
Fannin County						
Reduced income from reduced electrical generation	$0.00	$0.00	$21.66	$28.43	$36.71	$46.80
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$3.11	$4.08	$5.27	$6.72
Reduced jobs from reduced electrical generation	0	0	74	97	125	159
Freestone County						
Reduced income from reduced electrical generation	$0.00	$0.00	$0.00	$0.00	$64.62	$187.54
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$0.00	$0.00	$9.28	$26.92
Reduced jobs from reduced electrical generation	0	0	0	0	220	638
Henderson County						
Reduced income from reduced electrical generation	$0.00	$0.00	$139.23	$174.48	$209.72	$244.97
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$19.98	$25.04	$30.10	$35.16
Reduced jobs from reduced electrical generation	0	0	473	593	713	833
Navarro County						
Reduced income from reduced electrical generation	$0.00	$686.17	$1,152.77	$1,152.77	$1,152.77	$1,152.77
Reduced business taxes from reduced electrical generation	$0.00	$98.49	$165.46	$165.46	$165.46	$165.46
Reduced jobs from reduced electrical generation	0	2,333	3,919	3,919	3,919	3,919
Parker County						
Reduced income from reduced electrical generation	$0.00	$0.00	$0.00	$2.36	$3.64	$5.51
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$0.00	$0.34	$0.52	$0.79
Reduced jobs from reduced electrical generation	0	0	0	8	12	19

Steam-electric cont. ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Tarrant County						
Reduced income from reduced electrical generation	$0.00	$0.00	$12.67	$41.33	$37.61	$33.36
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$1.82	$5.93	$5.40	$4.79
Reduced jobs from reduced electrical generation	0	0	43	140	128	113
Wise County						
Reduced income from reduced electrical generation	$0.00	$0.00	$0.00	$0.00	$0.00	$16.63
Reduced business taxes from reduced electrical generation	$0.00	$0.00	$0.00	$0.00	$0.00	$2.39
Reduced jobs from reduced electrical generation	0	0	0	0	0	57

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Able Springs						
Monetary value of domestic water shortages	$0.00	$15.79	$19.68	$24.09	$29.80	$36.85
Lost income from reduced commercial business activity	$0.00	$2.44	$3.04	$3.72	$4.60	$5.70
Lost jobs due to reduced commercial business activity	0	98	122	150	185	229
Lost state and local taxes from reduced commercial business activity	$0.00	$0.38	$0.47	$0.58	$0.71	$0.88
Lost utility revenues	$0.00	$2.20	$2.74	$3.35	$4.14	$5.13
Addison						
Monetary value of domestic water shortages	$0.65	$3.62	$4.45	$6.10	$26.05	$35.19
Lost utility revenues	$1.70	$6.70	$8.24	$10.04	$12.05	$14.80
Aledo						
Monetary value of domestic water shortages	$0.00	$15.79	$19.68	$24.09	$29.80	$36.85
Lost income from reduced commercial business activity	$0.00	$2.44	$3.04	$3.72	$4.60	$5.70
Lost jobs due to reduced commercial business activity	0	98	122	150	185	229
Lost state and local taxes from reduced commercial business activity	$0.00	$0.38	$0.47	$0.58	$0.71	$0.88
Lost utility revenues	$0.00	$1.28	$2.89	$4.50	$4.80	$4.80
Allen						
Monetary value of domestic water shortages	$0.33	$5.91	$13.15	$53.39	$19.12	$81.96
Lost utility revenues	$1.06	$12.27	$21.64	$26.98	$31.47	$34.47
Anna						
Monetary value of domestic water shortages	$0.03	$0.80	$2.50	$18.58	$30.89	$63.19
Lost utility revenues	$0.09	$1.36	$3.28	$5.50	$8.33	$15.38
Annetta						
Monetary value of domestic water shortages	$0.00	$0.03	$0.10	$0.20	$1.11	$1.59
Lost utility revenues	$0.00	$0.07	$0.18	$0.28	$0.38	$0.49
Annetta South						
Monetary value of domestic water shortages	$0.00	$0.01	$0.02	$0.04	$0.06	$0.10
Lost utility revenues	$0.00	$0.01	$0.04	$0.07	$0.10	$0.13

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Argyle						
Monetary value of domestic water shortages	$45.35	$107.26	$85.01	$94.95	$106.26	$117.47
Lost income from reduced commercial business activity	$22.55	$53.32	$77.49	$86.55	$96.86	$107.07
Lost jobs due to reduced commercial business activity	502	1,186	1,724	1,925	2,155	2,382
Lost state and local taxes from reduced commercial business activity	$2.40	$5.67	$8.25	$9.21	$10.31	$11.39
Lost utility revenues	$3.44	$8.14	$11.82	$13.21	$14.78	$16.34
Arlington						
Monetary value of domestic water shortages	$1.74	$6.08	$19.97	$37.83	$308.22	$186.41
Lost utility revenues	$5.29	$15.31	$40.84	$62.25	$77.62	$91.89
Athens						
Monetary value of domestic water shortages	$0.79	$5.38	$11.58	$22.29	$62.04	$67.10
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$21.66
Lost jobs due to reduced commercial business activity	0	0	0	0	0	482
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$2.30
Lost utility revenues	$1.31	$2.25	$3.46	$4.91	$6.90	$9.46
Aubrey						
Monetary value of domestic water shortages	$0.00	$2.81	$8.36	$17.22	$33.08	$48.10
Lost income from reduced commercial business activity	$0.00	$0.00	$0.86	$3.62	$12.35	$18.79
Lost jobs due to reduced commercial business activity	0	0	27	114	389	593
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.12	$0.52	$1.76	$2.68
Lost utility revenues	$0.00	$0.61	$1.99	$3.28	$5.05	$7.32
Aurora						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.00	$0.06	$0.15
Lost utility revenues	$0.00	$0.00	$0.00	$0.00	$0.11	$0.24
Azle						
Monetary value of domestic water shortages	$0.12	$5.60	$42.36	$60.68	$83.91	$104.29
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$8.39	$26.11	$34.30
Lost jobs due to reduced commercial business activity	0	0	0	265	823	1,081
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$1.20	$3.72	$4.89
Lost utility revenues	$0.31	$2.14	$4.75	$7.68	$10.78	$13.49

Municipal ($millions)	2010	2020	2030	2040	2050	2060
Balch Springs						
Monetary value of domestic water shortages	$0.18	$0.98	$1.29	$1.51	$6.41	$8.72
Lost utility revenues	$0.56	$1.81	$2.12	$2.49	$2.97	$3.67
Bardwell						
Monetary value of domestic water shortages	$0.00	$0.03	$0.46	$0.76	$1.10	$2.06
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.13
Lost jobs due to reduced commercial business activity	0	0	0	0	0	5
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02
Lost utility revenues	$0.00	$0.05	$0.12	$0.19	$0.28	$0.38
Beford						
Monetary value of domestic water shortages	$0.25	$0.79	$2.71	$16.68	$23.40	$31.20
Lost utility revenues	$0.73	$2.06	$5.62	$8.42	$10.82	$13.12
Bells						
Monetary value of domestic water shortages	$0.00	$0.60	$1.96	$2.91	$4.95	$5.67
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.26	$0.31
Lost jobs due to reduced commercial business activity	0	0	0	0	10	13
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.04	$0.05
Lost utility revenues	$0.00	$0.19	$0.40	$0.56	$0.71	$0.81
Benbrook						
Monetary value of domestic water shortages	$0.21	$0.00	$0.49	$2.24	$17.18	$31.84
Lost utility revenues	$0.62	$0.00	$1.29	$4.66	$8.68	$13.39
Bethesda WSC						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.00	$0.00	$0.47
Lost utility revenues	$0.00	$0.00	$0.00	$0.00	$0.00	$1.08
Blackland WSC						
Monetary value of domestic water shortages	$0.003	$0.20	$0.49	$2.94	$4.47	$7.07
Lost utility revenues	$0.01	$0.35	$0.67	$1.00	$1.39	$1.81
Blooming Grove						
Monetary value of domestic water shortages	$0.00	$0.00	$0.01	$0.02	$0.03	$0.04
Lost utility revenues	$0.00	$0.00	$0.03	$0.04	$0.05	$0.07

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Blue Ridge						
Monetary value of domestic water shortages	$0.00	$7.18	$15.23	$26.66	$43.78	$50.01
Lost income from reduced commercial business activity	$0.00	$0.00	$1.94	$3.84	$6.25	$7.21
Lost jobs due to reduced commercial business activity	0	0	78	154	251	290
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.30	$0.59	$0.97	$1.12
Lost utility revenues	$0.00	$0.84	$2.14	$3.85	$6.01	$6.88
Bolivar						
Monetary value of domestic water shortages	$0.07	$0.53	$8.34	$56.01	$145.55	$216.82
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$5.11	$10.72	$16.20
Lost jobs due to reduced commercial business activity	0	0	0	411	862	1,302
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.79	$1.66	$2.51
Lost utility revenues	$0.19	$0.38	$3.36	$11.54	$21.61	$31.37
Bonham						
Monetary value of domestic water shortages	$0.00	$0.41	$1.11	$2.46	$14.10	$21.08
Lost utility revenues	$0.00	$1.08	$2.31	$4.06	$6.52	$8.86
Boyd						
Monetary value of domestic water shortages	$0.003	$0.01	$0.05	$0.13	$0.26	$1.24
Lost utility revenues	$0.01	$0.03	$0.12	$0.22	$0.35	$0.42
Bridgeport						
Monetary value of domestic water shortages	$0.00	$0.77	$12.90	$27.81	$65.12	$77.56
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$1.96	$23.98	$28.46
Lost jobs due to reduced commercial business activity	0	0	0	158	756	898
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.30	$3.42	$4.06
Lost utility revenues	$0.06	$0.53	$2.67	$3.97	$5.37	$7.33
Bryson						
Monetary value of domestic water shortages	$1.94	$1.96	$1.94	$1.90	$1.90	$1.90
Lost income from reduced commercial business activity	$0.30	$0.30	$0.30	$0.29	$0.29	$0.29
Lost jobs due to reduced commercial business activity	12	12	12	12	12	12
Lost state and local taxes from reduced commercial business activity	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05
Lost utility revenues	$0.27	$0.27	$0.27	$0.26	$0.26	$0.26

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Buena Vista – Bethel SUD						
Monetary value of domestic water shortages	$3.81	$21.74	$21.20	$36.85	$40.70	$63.92
Lost income from reduced commercial business activity	$0.00	$0.00	$1.59	$2.47	$3.44	$4.50
Lost jobs due to reduced commercial business activity	0	0	64	100	138	181
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.25	$0.38	$0.53	$0.70
Lost utility revenues	$1.35	$2.54	$3.94	$5.54	$7.28	$9.18
Carrollton						
Monetary value of domestic water shortages	$1.24	$5.52	$7.33	$28.10	$36.12	$48.06
Lost utility revenues	$5.53	$17.33	$20.18	$23.57	$27.63	$33.44
Cedar Hill						
Monetary value of domestic water shortages	$0.81	$5.05	$7.53	$29.33	$37.15	$48.96
Lost utility revenues	$2.17	$9.41	$12.45	$14.87	$17.24	$20.64
Celina						
Monetary value of domestic water shortages	$0.00	$70.66	$144.20	$312.19	$590.28	$712.65
Lost income from reduced commercial business activity	$0.00	$0.00	$55.11	$255.02	$488.73	$595.17
Lost jobs due to reduced commercial business activity	0	0	2,452	5,674	10,873	13,241
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$5.87	$27.14	$52.01	$63.34
Lost utility revenues	$0.00	$7.86	$21.68	$44.39	$77.93	$93.10
Chatfield WSC						
Monetary value of domestic water shortages	$0.00	$0.00	$0.06	$0.13	$0.25	$0.45
Lost utility revenues	$0.00	$0.00	$0.16	$0.30	$0.50	$0.79
Chico						
Monetary value of domestic water shortages	$0.003	$0.01	$0.07	$1.07	$3.20	$4.00
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.25
Lost jobs due to reduced commercial business activity	0	0	0	0	0	10
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.04
Lost utility revenues	$0.01	$0.03	$0.11	$0.27	$0.48	$0.73

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Cockrell Hill						
Monetary value of domestic water shortages	$0.06	$0.31	$0.39	$0.45	$2.28	$3.00
Lost utility revenues	$0.15	$0.48	$0.54	$0.61	$0.71	$0.85
College Mound WSC						
Monetary value of domestic water shortages	$0.00	$0.03	$0.47	$1.06	$6.47	$9.82
Lost utility revenues	$0.00	$0.07	$0.79	$1.39	$2.09	$2.91
Colleyville						
Monetary value of domestic water shortages	$1.17	$1.71	$4.27	$20.18	$26.54	$37.89
Lost utility revenues	$2.72	$3.97	$7.03	$9.33	$11.16	$12.83
Collinsville						
Monetary value of domestic water shortages	$0.00	$0.13	$1.67	$3.40	$4.41	$6.31
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.42	$0.61
Lost jobs due to reduced commercial business activity	0	0	0	0	17	24
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.07	$0.09
Lost utility revenues	$0.00	$0.24	$0.57	$0.87	$1.19	$1.52
Combine						
Monetary value of domestic water shortages	$0.03	$0.16	$0.23	$0.31	$1.84	$2.85
Lost utility revenues	$0.06	$0.25	$0.32	$0.42	$0.57	$0.81
Combine WSC						
Monetary value of domestic water shortages	$0.04	$0.33	$0.49	$0.69	$4.32	$7.01
Lost utility revenues	$0.11	$0.48	$0.68	$0.94	$1.35	$1.99
Community Water Company						
Monetary value of domestic water shortages	$0.00	$0.04	$0.84	$1.70	$3.00	$4.53
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.18	$0.60
Lost jobs due to reduced commercial business activity	0	0	0	0	7	24
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.03	$0.09
Lost utility revenues	$0.00	$0.07	$0.23	$0.41	$0.63	$0.94
Community WSC						
Monetary value of domestic water shortages	$0.01	$0.04	$0.15	$1.10	$1.58	$2.31
Lost utility revenues	$0.02	$0.10	$0.27	$0.38	$0.49	$0.59
Coppell						
Monetary value of domestic water shortages	$0.95	$4.14	$5.27	$20.02	$25.27	$33.41
Lost utility revenues	$2.48	$7.65	$8.65	$9.98	$11.56	$13.87

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Copper Canyon						
Monetary value of domestic water shortages	$0.10	$0.36	$0.39	$0.28	$0.28	$2.22
Lost utility revenues	$0.17	$0.50	$0.53	$0.43	$0.44	$0.75
Corinth						
Monetary value of domestic water shortages	$0.17	$30.06	$72.20	$85.52	$98.68	$118.06
Lost income from reduced commercial business activity	$0.00	$19.98	$61.56	$75.82	$88.73	$97.51
Lost jobs due to reduced commercial business activity	0	445	1,370	1,687	1,974	2,169
Lost state and local taxes from reduced commercial business activity	$0.00	$2.13	$6.55	$8.07	$9.44	$10.38
Lost utility revenues	$0.48	$8.28	$10.81	$12.58	$14.24	$15.40
Corsicana						
Monetary value of domestic water shortages	$0.00	$0.36	$0.98	$1.67	$2.68	$13.38
Lost utility revenues	$0.00	$1.05	$2.28	$3.47	$4.97	$6.76
County-other (Cooke)						
Monetary value of domestic water shortages	$0.02	$0.17	$0.18	$0.17	$0.16	$0.16
County-other (Fannin)						
Monetary value of domestic water shortages	$0.52	$0.42	$0.35	$0.25	$0.18	$0.12
County-other (Grayson)						
Monetary value of domestic water shortages	$19.31	$18.72	$17.70	$13.42	$10.02	$6.80
County-other (Jack)						
Monetary value of domestic water shortages	$0.00	$0.00	$0.04	$0.09	$0.16	$0.27
County-other (Kaufman)						
Monetary value of domestic water shortages	$0.04	$0.31	$0.68	$1.00	$4.21	$4.71
County-other (Parker)						
Monetary value of domestic water shortages	$0.04	$0.17	$0.51	$0.83	$0.79	$0.76
County-other (Rockwall)						
Monetary value of domestic water shortages	$0.00	$0.03	$0.07	$0.08	$0.10	$0.11
County-other (Tarrant)						
Monetary value of domestic water shortages	$0.04	$0.14	$0.39	$0.70	$0.86	$1.15
County-other (Wise)						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.00	$0.00	$0.05

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Crandall						
Monetary value of domestic water shortages	$0.01	$6.72	$8.97	$19.87	$27.48	$40.99
Lost income from reduced commercial business activity	$0.00	$0.00	$2.35	$7.59	$11.00	$14.98
Lost jobs due to reduced commercial business activity	0	0	74	239	347	472
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.67	$1.08	$1.57	$2.14
Lost utility revenues	$0.04	$1.29	$2.20	$3.14	$4.27	$5.62
Cresson						
Monetary value of domestic water shortages	$0.31	$0.37	$0.46	$0.56	$0.68	$0.83
Lost utility revenues	$0.08	$0.10	$0.12	$0.14	$0.17	$0.21
Cross Roads						
Monetary value of domestic water shortages	$0.00	$0.69	$0.18	$0.00	$0.00	$0.00
Lost utility revenues	$0.00	$0.95	$0.41	$0.00	$0.00	$0.00
Crowley						
Monetary value of domestic water shortages	$0.14	$0.25	$0.73	$1.71	$9.07	$12.74
Lost utility revenues	$0.37	$0.66	$1.52	$2.82	$4.19	$5.36
Culleoka WSC						
Monetary value of domestic water shortages	$0.02	$0.63	$0.97	$6.20	$9.21	$12.81
Lost utility revenues	$0.05	$0.94	$1.27	$1.84	$2.48	$3.12
Dallas						
Monetary value of domestic water shortages	$27.38	$123.84	$163.79	$233.21	$783.54	$1,202.95
Lost utility revenues	$69.18	$227.62	$269.55	$329.95	$420.33	$587.09
Dalworthington Garden						
Monetary value of domestic water shortages	$0.005	$0.05	$0.18	$0.35	$0.51	$2.48
Lost utility revenues	$0.01	$0.13	$0.36	$0.54	$0.70	$0.84
Danville WSC						
Monetary value of domestic water shortages	$0.01	$0.34	$0.85	$5.57	$7.62	$11.78
Lost utility revenues	$0.03	$0.60	$1.17	$1.73	$2.37	$3.01
Dawson						
Monetary value of domestic water shortages	$0.00	$0.00	$0.02	$0.04	$0.07	$0.14
Lost utility revenues	$0.00	$0.00	$0.04	$0.08	$0.13	$0.20
De Soto						
Monetary value of domestic water shortages	$0.85	$4.44	$6.49	$27.28	$38.79	$52.63
Lost utility revenues	$2.22	$8.22	$10.69	$13.78	$17.94	$22.13

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Decatur						
Monetary value of domestic water shortages	$0.02	$0.33	$8.89	$42.79	$51.07	$64.95
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$8.40	$23.31
Lost jobs due to reduced commercial business activity	0	0	0	0	265	735
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$1.20	$3.32
Lost utility revenues	$0.07	$0.69	$2.65	$4.76	$7.54	$9.69
Denison						
Monetary value of domestic water shortages	$69.18	$129.59	$80.12	$81.91	$84.78	$87.18
Lost income from reduced commercial business activity	$50.67	$61.03	$67.13	$69.12	$72.32	$76.14
Lost jobs due to reduced commercial business activity	1,127	1,358	1,494	1,538	1,609	1,694
Lost state and local taxes from reduced commercial business activity	$5.39	$6.50	$7.14	$7.36	$7.70	$8.10
Lost utility revenues	$9.55	$11.05	$11.94	$12.23	$12.69	$13.25
Denton County FWSD #1A						
Monetary value of domestic water shortages	$0.03	$8.88	$17.77	$28.17	$42.87	$53.45
Lost utility revenues	$0.08	$2.27	$3.58	$4.94	$6.40	$7.97
Double Oak						
Monetary value of domestic water shortages	$2.40	$5.75	$6.13	$6.19	$5.90	$6.16
Lost income from reduced commercial business activity	$0.00	$2.13	$2.58	$2.67	$2.35	$2.66
Lost jobs due to reduced commercial business activity	0	47	57	59	52	59
Lost state and local taxes from reduced commercial business activity	$0.00	$0.23	$0.27	$0.28	$0.25	$0.28
Lost utility revenues	$0.61	$1.05	$1.14	$1.16	$1.09	$1.15
Duncanville						
Monetary value of domestic water shortages	$0.63	$2.71	$3.45	$12.84	$16.08	$21.20
Lost utility revenues	$1.63	$5.02	$5.68	$6.49	$7.44	$8.91
East Cedar Creek FWSD						
Monetary value of domestic water shortages	$0.07	$0.19	$0.77	$1.58	$6.09	$9.48
Lost utility revenues	$0.16	$0.41	$1.30	$2.07	$2.82	$3.59
East Fork SUD						
Monetary value of domestic water shortages	$0.15	$0.54	$0.92	$5.32	$7.28	$9.60
Lost utility revenues	$0.33	$0.80	$1.21	$1.59	$2.02	$2.43

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Edgecliff						
Monetary value of domestic water shortages	$0.004	$0.05	$0.15	$0.29	$1.58	$2.27
Lost utility revenues	$0.01	$0.10	$0.27	$0.40	$0.49	$0.58
Ennis						
Monetary value of domestic water shortages	$0.00	$0.00	$0.40	$1.75	$20.52	$39.83
Lost utility revenues	$0.00	$0.00	$1.04	$3.63	$9.49	$15.10
Euless						
Monetary value of domestic water shortages	$0.65	$1.16	$3.63	$18.99	$25.72	$33.30
Lost utility revenues	$1.69	$3.04	$6.72	$9.59	$11.90	$14.00
Everman						
Monetary value of domestic water shortages	$0.01	$0.02	$0.07	$0.09	$0.11	$0.14
Lost utility revenues	$0.02	$0.06	$0.14	$0.19	$0.23	$0.28
Fairfield						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.01	$0.21	$0.47
Lost utility revenues	$0.00	$0.00	$0.00	$0.02	$0.47	$0.83
Fairview						
Monetary value of domestic water shortages	$0.07	$1.17	$2.99	$21.69	$27.78	$33.71
Lost utility revenues	$0.21	$1.98	$3.92	$6.43	$7.49	$8.21
Farmers Branch						
Monetary value of domestic water shortages	$0.92	$4.35	$5.91	$23.48	$31.23	$43.05
Lost utility revenues	$2.41	$8.05	$9.72	$11.86	$14.44	$18.10
Farmersville						
Monetary value of domestic water shortages	$0.004	$0.34	$0.78	$7.59	$14.17	$25.77
Lost utility revenues	$0.01	$0.61	$1.38	$2.58	$4.41	$6.59
Fate						
Monetary value of domestic water shortages	$11.47	$21.76	$27.11	$32.03	$35.62	$38.09
Lost utility revenues	$2.79	$5.30	$6.60	$7.80	$8.67	$9.27

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Ferris						
Monetary value of domestic water shortages	$1.31	$2.41	$4.09	$4.93	$7.18	$8.85
Lost income from reduced commercial business activity	$0.00	$0.00	$0.69	$0.93	$1.24	$1.52
Lost jobs due to reduced commercial business activity	0	0	22	29	39	48
Lost state and local taxes from reduced commercial business activity	$0.002	$0.00	$0.10	$0.13	$0.18	$0.22
Lost utility revenues	$0.34	$0.62	$0.75	$0.92	$1.13	$1.33
Files Valley WSC						
Monetary value of domestic water shortages	$0.13	$0.15	$0.17	$0.19	$0.20	$0.22
Lost utility revenues	$0.18	$0.21	$0.24	$0.26	$0.28	$0.30
Flower Mound						
Monetary value of domestic water shortages	$5.32	$84.26	$178.38	$193.48	$384.46	$405.96
Lost income from reduced commercial business activity	$0.00	$0.00	$115.82	$136.99	$155.05	$171.98
Lost jobs due to reduced commercial business activity	0	0	1,609	1,904	2,154	2,390
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$12.33	$14.58	$16.50	$18.30
Lost utility revenues	$2.42	$26.12	$49.25	$53.56	$57.23	$60.68
Forest Hill						
Monetary value of domestic water shortages	$0.01	$0.13	$0.47	$0.94	$4.51	$6.85
Lost utility revenues	$0.04	$0.35	$0.98	$1.54	$2.09	$2.60
Forney						
Monetary value of domestic water shortages	$0.02	$0.96	$2.36	$3.41	$15.79	$23.13
Lost utility revenues	$0.07	$2.00	$3.89	$5.62	$7.30	$8.77
Forney Lake WSC						
Monetary value of domestic water shortages	$0.02	$0.49	$1.10	$7.78	$12.34	$20.55
Lost utility revenues	$0.05	$0.87	$1.71	$2.64	$3.84	$5.25
Forth Worth						
Monetary value of domestic water shortages	$5.27	$24.74	$103.27	$502.98	$884.18	$1,402.78
Lost utility revenues	$14.72	$61.46	$167.85	$275.59	$404.56	$571.33

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Frisco						
Monetary value of domestic water shortages	$6.58	$13.80	$109.26	$184.94	$260.45	$312.56
Lost utility revenues	$15.31	$28.67	$55.20	$85.54	$109.52	$118.52
Gainesville						
Monetary value of domestic water shortages	$0.00	$0.00	$0.42	$1.06	$1.83	$2.86
Lost utility revenues	$0.00	$0.00	$1.11	$2.19	$3.39	$4.71
Garland						
Monetary value of domestic water shortages	$5.75	$8.68	$17.29	$59.26	$82.66	$90.53
Lost utility revenues	$13.06	$17.76	$28.45	$35.15	$40.75	$44.63
Gastonia-Scurry SUD						
Monetary value of domestic water shortages	$0.01	$0.26	$0.60	$2.90	$4.97	$7.41
Lost utility revenues	$0.03	$0.55	$0.99	$1.47	$2.09	$2.81
Glen Heights						
Monetary value of domestic water shortages	$0.00	$0.22	$0.42	$0.74	$1.29	$7.11
Lost utility revenues	$0.00	$0.51	$0.88	$1.37	$1.98	$2.88
Grand Prairie						
Monetary value of domestic water shortages	$14.10	$186.40	$214.91	$244.66	$277.30	$376.33
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$112.07
Lost jobs due to reduced commercial business activity	0	0	0	0	0	2,493
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$11.93
Lost utility revenues	$4.88	$37.98	$43.23	$49.43	$57.34	$63.05
Grapevine						
Monetary value of domestic water shortages	$0.45	$2.03	$5.04	$8.64	$34.47	$44.52
Lost utility revenues	$1.32	$5.29	$10.48	$14.22	$17.42	$20.59
Gun Barrel City						
Monetary value of domestic water shortages	$0.01	$16.62	$15.02	$18.48	$22.86	$34.99
Lost income from reduced commercial business activity	$0.00	$0.00	$0.95	$1.36	$1.81	$4.73
Lost jobs due to reduced commercial business activity	0	0	38	55	73	190
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.15	$0.21	$0.28	$0.73
Lost utility revenues	$0.03	$1.95	$2.61	$3.29	$4.05	$5.02

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Gunter						
Monetary value of domestic water shortages	$0.00	$1.95	$5.44	$10.07	$13.64	$16.26
Lost income from reduced commercial business activity	$0.00	$0.00	$0.36	$0.64	$1.86	$2.25
Lost jobs due to reduced commercial business activity	0	0	14	26	75	91
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.06	$0.10	$0.29	$0.35
Lost utility revenues	$0.00	$0.47	$1.00	$1.51	$2.03	$2.39
Hackberry						
Monetary value of domestic water shortages	$0.00	$0.03	$0.08	$0.13	$0.19	$0.24
Lost utility revenues	$0.01	$0.07	$0.17	$0.24	$0.30	$0.33
Haltom City						
Monetary value of domestic water shortages	$0.05	$0.66	$2.30	$14.14	$19.53	$28.41
Lost utility revenues	$0.15	$1.72	$4.78	$7.14	$9.03	$10.77
Haslet						
Monetary value of domestic water shortages	$0.01	$0.13	$0.89	$1.70	$9.44	$13.61
Lost utility revenues	$0.02	$0.33	$1.59	$2.34	$2.94	$3.48
Heath						
Monetary value of domestic water shortages	$0.02	$0.80	$2.02	$12.40	$19.03	$30.57
Lost utility revenues	$0.05	$1.36	$2.65	$4.01	$5.64	$7.44
Hebron						
Monetary value of domestic water shortages	$0.01	$0.03	$0.05	$0.32	$0.41	$0.54
Lost utility revenues	$0.03	$0.08	$0.09	$0.10	$0.11	$0.14
Hickory Creek						
Monetary value of domestic water shortages	$0.00	$7.01	$13.47	$19.35	$21.42	$23.03
Lost income from reduced commercial business activity	$0.00	$1.31	$4.78	$7.10	$7.81	$8.26
Lost jobs due to reduced commercial business activity	0	41	151	224	246	261
Lost state and local taxes from reduced commercial business activity	$0.00	$0.19	$0.68	$1.01	$1.11	$1.18
Lost utility revenues	$0.00	$1.48	$2.13	$2.90	$3.08	$3.19
Hickory Creek SUD						
Monetary value of domestic water shortages	$0.13	$0.14	$0.15	$0.15	$0.19	$0.21
Lost utility revenues	$0.04	$0.07	$0.09	$0.10	$0.13	$0.15

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
High Point WSC						
Monetary value of domestic water shortages	$0.01	$0.15	$0.37	$2.22	$3.34	$4.88
Lost utility revenues	$0.02	$0.27	$0.51	$0.75	$1.03	$1.37
Highland Village						
Monetary value of domestic water shortages	$0.00	$13.18	$19.14	$24.45	$31.59	$52.38
Lost income from reduced commercial business activity	$0.00	$2.53	$12.32	$16.19	$19.34	$43.68
Lost jobs due to reduced commercial business activity	0	56	274	360	430	972
Lost state and local taxes from reduced commercial business activity	$0.00	$0.27	$1.31	$1.72	$2.06	$4.65
Lost utility revenues	$0.00	$4.31	$5.95	$6.73	$7.36	$7.86
Honey Grove						
Monetary value of domestic water shortages	$0.00	$0.02	$0.16	$0.41	$2.73	$4.50
Lost utility revenues	$0.00	$0.06	$0.28	$0.56	$0.85	$1.15
Howe						
Monetary value of domestic water shortages	$0.07	$0.11	$0.38	$2.91	$4.29	$7.21
Lost utility revenues	$0.14	$0.25	$0.59	$0.99	$1.33	$1.84
Hudson Oaks						
Monetary value of domestic water shortages	$0.00	$0.02	$0.08	$0.20	$0.36	$2.34
Lost utility revenues	$0.01	$0.04	$0.18	$0.36	$0.56	$0.80
Hurst						
Monetary value of domestic water shortages	$0.05	$0.59	$1.94	$3.54	$14.42	$20.52
Lost utility revenues	$0.15	$1.53	$4.03	$5.83	$7.29	$8.63
Hutchins						
Monetary value of domestic water shortages	$0.08	$0.45	$0.72	$4.38	$7.25	$15.70
Lost utility revenues	$0.19	$0.70	$1.00	$1.49	$2.26	$4.45
Irving						
Monetary value of domestic water shortages	$0.00	$8.97	$94.14	$120.96	$149.24	$162.31
Lost utility revenues	$0.00	$20.37	$55.85	$65.64	$73.57	$80.01
Italy						
Monetary value of domestic water shortages	$0.00	$0.05	$0.12	$0.91	$1.50	$2.22
Lost utility revenues	$0.00	$0.12	$0.21	$0.31	$0.43	$0.57

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Johnson County SUD						
Monetary value of domestic water shortages	$0.00	$4.52	$7.52	$10.68	$14.19	$18.03
Lost income from reduced commercial business activity	$0.00	$0.31	$0.50	$1.46	$2.01	$2.57
Lost jobs due to reduced commercial business activity	0	12	20	59	81	103
Lost state and local taxes from reduced commercial business activity	$0.00	$0.05	$0.08	$0.23	$0.31	$0.40
Lost utility revenues	$0.52	$0.84	$1.19	$1.60	$2.14	$2.69
Josephine						
Monetary value of domestic water shortages	$0.00	$0.07	$0.18	$1.47	$2.16	$3.32
Lost utility revenues	$0.00	$0.17	$0.33	$0.50	$0.67	$0.85
Justin						
Monetary value of domestic water shortages	$0.02	$5.94	$14.33	$29.12	$43.51	$49.11
Lost income from reduced commercial business activity	$0.00	$0.04	$0.27	$1.25	$1.79	$2.12
Lost jobs due to reduced commercial business activity	0	2	11	50	72	85
Lost state and local taxes from reduced commercial business activity	$0.00	$0.01	$0.04	$0.19	$0.28	$0.33
Lost utility revenues	$0.03	$1.55	$3.14	$5.73	$7.41	$8.41
Kaufman						
Monetary value of domestic water shortages	$0.02	$0.41	$0.96	$4.36	$6.78	$9.94
Lost utility revenues	$0.07	$0.85	$1.58	$2.21	$2.85	$3.77
Keller						
Monetary value of domestic water shortages	$0.24	$0.84	$3.24	$5.98	$7.53	$38.76
Lost utility revenues	$0.69	$2.19	$6.73	$9.85	$12.40	$14.70
Kemp						
Monetary value of domestic water shortages	$0.0022	$0.03	$0.11	$0.81	$1.09	$1.57
Lost utility revenues	$0.01	$0.06	$0.19	$0.27	$0.34	$0.40
Kennedale						
Monetary value of domestic water shortages	$0.35	$0.35	$0.54	$0.79	$1.08	$1.25
Lost utility revenues	$0.68	$0.67	$0.92	$1.18	$1.41	$1.64

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Krugerville						
Monetary value of domestic water shortages	$0.00	$0.08	$1.02	$1.87	$3.65	$7.63
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.25	$1.02
Lost jobs due to reduced commercial business activity	0	0	0	0	10	41
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.04	$0.16
Lost utility revenues	$0.00	$0.11	$0.23	$0.42	$0.67	$1.16
Krum						
Monetary value of domestic water shortages	$0.004	$1.95	$3.71	$6.03	$9.52	$13.94
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.59	$0.86
Lost jobs due to reduced commercial business activity	0	0	0	0	24	34
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.09	$0.13
Lost utility revenues	$0.01	$0.53	$0.83	$1.13	$1.54	$1.97
Ladonia						
Monetary value of domestic water shortages	$0.00	$3.93	$6.40	$9.67	$12.50	$17.47
Lost income from reduced commercial business activity	$0.00	$0.00	$0.47	$1.29	$1.74	$2.43
Lost jobs due to reduced commercial business activity	0	0	19	52	70	98
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.07	$0.20	$0.27	$0.38
Lost utility revenues	$0.00	$0.72	$1.20	$1.47	$1.84	$2.42
Lake Dallas						
Monetary value of domestic water shortages	$0.00	$7.55	$12.65	$21.42	$22.69	$23.41
Lost income from reduced commercial business activity	$0.00	$2.06	$3.44	$8.01	$8.87	$9.47
Lost jobs due to reduced commercial business activity	0	65	109	253	280	299
Lost state and local taxes from reduced commercial business activity	$0.00	$0.29	$0.49	$1.14	$1.26	$1.35
Lost utility revenues	$0.00	$2.22	$2.95	$3.20	$3.39	$3.53
Lake Worth						
Monetary value of domestic water shortages	$0.32	$0.36	$0.70	$4.06	$5.57	$7.24
Lost utility revenues	$0.58	$0.65	$0.96	$1.26	$1.58	$1.85
Lakeside						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.09	$0.25	$0.54
Lost utility revenues	$0.00	$0.00	$0.00	$0.20	$0.44	$0.74
Lancaster						
Monetary value of domestic water shortages	$0.46	$3.10	$4.27	$4.90	$20.25	$26.67
Lost utility revenues	$1.19	$5.73	$7.04	$8.07	$9.36	$11.22

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Lavon WSC						
Monetary value of domestic water shortages	$0.01	$0.51	$1.44	$9.35	$14.55	$25.65
Lost utility revenues	$0.03	$0.91	$1.99	$3.07	$4.53	$6.56
Leonard						
Monetary value of domestic water shortages	$0.00	$0.01	$1.32	$5.92	$13.21	$18.03
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.38	$1.76	$2.57
Lost jobs due to reduced commercial business activity	0	0	0	15	71	103
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.06	$0.27	$0.40
Lost utility revenues	$0.00	$0.03	$0.37	$1.09	$1.98	$2.71
Lewisville						
Monetary value of domestic water shortages	$1.59	$7.65	$10.78	$13.80	$64.52	$96.82
Lost utility revenues	$4.14	$14.17	$17.74	$22.71	$29.84	$40.71
Lincoln Park						
Monetary value of domestic water shortages	$0.00	$0.48	$0.96	$1.65	$2.66	$3.37
Lost income from reduced commercial business activity	$0.00	$0.01	$0.08	$0.13	$0.36	$0.48
Lost jobs due to reduced commercial business activity	0	0	3	5	14	19
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.01	$0.02	$0.06	$0.07
Lost utility revenues	$0.00	$0.13	$0.23	$0.31	$0.40	$0.50
Little Elm						
Monetary value of domestic water shortages	$0.65	$2.03	$3.83	$18.43	$23.21	$27.91
Lost utility revenues	$1.69	$3.76	$6.30	$8.52	$9.76	$10.58
Lowry Crossing						
Monetary value of domestic water shortages	$0.11	$0.29	$1.80	$1.93	$1.96	$0.00
Lost utility revenues	$0.19	$0.40	$0.56	$0.60	$0.61	$0.00
Lucas						
Monetary value of domestic water shortages	$0.11	$0.57	$3.41	$5.70	$11.28	$16.64
Lost utility revenues	$0.28	$1.06	$1.72	$2.63	$4.28	$6.31
Luella WSC						
Monetary value of domestic water shortages	$0.00	$0.01	$0.07	$0.24	$0.25	$1.83
Lost utility revenues	$0.00	$0.03	$0.17	$0.37	$0.40	$0.62

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
M.E.N WSC						
Monetary value of domestic water shortages	$0.00	$0.00	$0.05	$0.11	$0.22	$0.37
Lost utility revenues	$0.00	$0.01	$0.11	$0.22	$0.35	$0.51
Mabank						
Monetary value of domestic water shortages	$0.01	$0.08	$0.32	$1.04	$1.36	$2.12
Lost utility revenues	$0.02	$0.19	$0.57	$0.99	$1.46	$2.05
Mansfield						
Monetary value of domestic water shortages	$0.46	$111.43	$325.34	$388.49	$434.51	$481.96
Lost income from reduced commercial business activity	$0.00	$76.50	$285.56	$338.48	$375.89	$416.04
Lost jobs due to reduced commercial business activity	0	1,702	6,353	7,530	8,363	9,256
Lost state and local taxes from reduced commercial business activity	$0.00	$8.14	$30.39	$36.02	$40.00	$44.28
Lost utility revenues	$1.36	$30.68	$48.60	$57.98	$64.78	$71.83
Marilee SUD						
Monetary value of domestic water shortages	$0.00	$0.19	$0.48	$2.90	$6.77	$11.26
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.29
Lost jobs due to reduced commercial business activity	0	0	0	0	0	12
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.05
Lost utility revenues	$0.00	$0.34	$0.66	$1.01	$1.75	$2.69
May Pearl						
Monetary value of domestic water shortages	$0.00	$0.03	$0.12	$0.10	$0.51	$0.09
Lost utility revenues	$0.00	$0.06	$0.19	$0.17	$0.16	$0.16
McKinney						
Monetary value of domestic water shortages	$6.83	$11.10	$29.88	$131.31	$200.16	$219.23
Lost utility revenues	$13.97	$22.70	$49.16	$77.90	$98.67	$108.07
McLendon-Chisholm						
Monetary value of domestic water shortages	$0.004	$0.07	$0.15	$1.04	$1.53	$2.39
Lost utility revenues	$0.01	$0.16	$0.27	$0.35	$0.48	$0.61
Melissa						
Monetary value of domestic water shortages	$0.01	$1.43	$4.42	$34.99	$62.98	$84.18
Lost utility revenues	$0.03	$2.42	$5.80	$10.37	$16.98	$20.49

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Mesquite						
Monetary value of domestic water shortages	$0.17	$6.26	$13.69	$52.59	$75.07	$82.23
Lost utility revenues	$0.50	$12.80	$22.53	$28.54	$33.35	$36.53
Midlothian						
Monetary value of domestic water shortages	$8.06	$29.03	$65.54	$141.97	$180.72	$221.98
Lost income from reduced commercial business activity	$0.00	$8.57	$40.92	$121.27	$163.08	$204.52
Lost jobs due to reduced commercial business activity	0	191	910	2,698	3,628	4,550
Lost state and local taxes from reduced commercial business activity	$0.00	$0.91	$4.35	$12.91	$17.36	$21.77
Lost utility revenues	$2.39	$8.90	$15.67	$21.26	$27.14	$32.98
Milligan WSC						
Monetary value of domestic water shortages	$0.004	$0.04	$0.09	$0.56	$0.70	$0.93
Lost utility revenues	$0.01	$0.10	$0.15	$0.19	$0.22	$0.24
Mountain Peak SUD						
Monetary value of domestic water shortages	$0.04	$0.19	$2.37	$6.48	$8.88	$16.70
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$5.86	$10.58
Lost jobs due to reduced commercial business activity	0	0	0	0	130	235
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.62	$1.13
Lost utility revenues	$0.13	$0.40	$0.99	$1.68	$2.77	$4.12
Mt. Zion WSC						
Monetary value of domestic water shortages	$0.004	$0.10	$0.20	$1.28	$1.61	$2.15
Lost utility revenues	$0.01	$0.22	$0.35	$0.43	$0.50	$0.55
Muenster						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.01	$0.03	$0.05
Lost utility revenues	$0.00	$0.00	$0.00	$0.03	$0.07	$0.12
Murphy						
Monetary value of domestic water shortages	$0.03	$2.05	$4.07	$16.50	$23.12	$28.08
Lost utility revenues	$0.11	$4.25	$6.70	$8.33	$9.72	$10.65

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Mustang WSC						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$20.43	$42.81	$77.91
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$9.18	$31.35
Lost jobs due to reduced commercial business activity	0	0	0	0	290	989
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$1.31	$4.47
Lost utility revenues	$0.00	$0.00	$0.00	$3.88	$8.50	$12.80
Nevada						
Monetary value of domestic water shortages	$0.002	$0.16	$0.38	$3.78	$8.01	$24.11
Lost utility revenues	$0.01	$0.28	$0.52	$1.28	$2.49	$6.83
New Fairview						
Monetary value of domestic water shortages	$0.00	$0.10	$1.65	$4.51	$4.06	$6.36
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.70	$1.07
Lost jobs due to reduced commercial business activity	0	0	0	0	22	34
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.10	$0.15
Lost utility revenues	$0.00	$0.14	$0.33	$0.53	$0.75	$1.00
New Hope						
Monetary value of domestic water shortages	$0.00	$0.09	$0.29	$2.83	$5.42	$16.10
Lost utility revenues	$0.00	$0.20	$0.52	$0.96	$1.69	$4.12
Newark						
Monetary value of domestic water shortages	$0.01	$1.21	$3.13	$4.84	$8.00	$13.00
Lost income from reduced commercial business activity	$0.00	$0.00	$0.38	$0.85	$2.89	$4.69
Lost jobs due to reduced commercial business activity	0	0	12	27	91	148
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.05	$0.12	$0.41	$0.67
Lost utility revenues	$0.03	$0.24	$0.44	$0.77	$1.17	$1.80
North Collin WSC						
Monetary value of domestic water shortages	$0.01	$0.50	$0.79	$4.78	$7.41	$10.25
Lost utility revenues	$0.03	$0.84	$1.03	$1.41	$2.00	$2.50
North Richland Hills						
Monetary value of domestic water shortages	$0.09	$1.14	$4.11	$7.94	$36.50	$53.88
Lost utility revenues	$0.27	$2.98	$8.53	$13.08	$16.88	$20.43

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Northlake						
Monetary value of domestic water shortages	$0.00	$0.10	$2.86	$20.33	$23.03	$36.23
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$4.17	$6.19
Lost jobs due to reduced commercial business activity	0	0	0	0	132	195
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.59	$0.88
Lost utility revenues	$0.00	$0.21	$0.73	$2.37	$4.26	$5.69
Oak Grove						
Monetary value of domestic water shortages	$0.002	$0.03	$0.08	$0.60	$0.90	$1.44
Lost utility revenues	$0.01	$0.08	$0.14	$0.20	$0.28	$0.37
Oak Leaf						
Monetary value of domestic water shortages	$0.04	$0.12	$0.21	$1.40	$2.00	$2.92
Lost utility revenues	$0.11	$0.28	$0.36	$0.48	$0.62	$0.83
Oak Point						
Monetary value of domestic water shortages	$0.22	$15.23	$28.38	$32.16	$37.17	$44.22
Lost income from reduced commercial business activity	$0.00	$2.58	$10.37	$11.89	$13.61	$16.29
Lost jobs due to reduced commercial business activity	0	81	327	375	429	514
Lost state and local taxes from reduced commercial business activity	$0.00	$0.37	$1.48	$1.69	$1.94	$2.32
Lost utility revenues	$0.31	$2.41	$4.25	$4.83	$5.47	$6.36
Ovilla						
Monetary value of domestic water shortages	$0.13	$0.55	$1.02	$7.46	$9.80	$14.88
Lost utility revenues	$0.37	$1.20	$1.78	$2.53	$3.05	$3.88
Palmer						
Monetary value of domestic water shortages	$0.00	$0.002	$0.01	$0.03	$0.06	$0.10
Lost utility revenues	$0.00	$0.01	$0.04	$0.06	$0.11	$0.17
Paradise						
Monetary value of domestic water shortages	$0.00	$0.01	$0.04	$0.36	$0.60	$1.07
Lost utility revenues	$0.01	$0.02	$0.07	$0.12	$0.19	$0.27
Parker						
Monetary value of domestic water shortages	$0.01	$1.20	$3.55	$29.12	$59.55	$98.89
Lost utility revenues	$0.03	$2.13	$4.89	$9.89	$16.87	$25.28

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Payne Springs						
Monetary value of domestic water shortages	$0.86	$0.95	$1.04	$1.13	$1.42	$1.87
Lost income from reduced commercial business activity	$0.02	$0.03	$0.03	$0.04	$0.10	$0.13
Lost jobs due to reduced commercial business activity	1	1	1	2	4	5
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.01	$0.01	$0.02	$0.02
Lost utility revenues	$0.19	$0.22	$0.24	$0.27	$0.30	$0.35
Pecan Hill						
Monetary value of domestic water shortages	$0.00	$0.00	$0.00	$0.00	$0.09	$1.99
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.14
Lost jobs due to reduced commercial business activity	0	0	0	0	0	6
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.02
Lost utility revenues	$0.00	$0.00	$0.00	$0.00	$0.05	$0.42
Pelican Bay						
Monetary value of domestic water shortages	$0.00	$0.04	$0.14	$0.92	$1.28	$1.98
Lost utility revenues	$0.00	$0.10	$0.25	$0.31	$0.40	$0.51
Pilot Point						
Monetary value of domestic water shortages	$0.14	$8.48	$24.10	$28.60	$33.63	$39.05
Lost income from reduced commercial business activity	$0.00	$0.00	$8.35	$10.53	$12.32	$14.23
Lost jobs due to reduced commercial business activity	0	0	263	332	389	449
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$1.19	$1.50	$1.76	$2.03
Lost utility revenues	$0.24	$1.20	$3.44	$4.09	$4.60	$5.15
Plano						
Monetary value of domestic water shortages	$0.46	$16.06	$31.67	$111.78	$156.55	$191.95
Lost utility revenues	$1.15	$32.60	$51.68	$64.54	$75.53	$83.02
Ponder						
Monetary value of domestic water shortages	$0.00	$3.20	$18.07	$19.84	$26.90	$28.29
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$10.09	$12.14	$12.72
Lost jobs due to reduced commercial business activity	0	0	0	318	383	401
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$1.44	$1.73	$1.81
Lost utility revenues	$0.00	$1.55	$4.18	$7.33	$8.71	$9.06

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Post Oak Bend						
Monetary value of domestic water shortages	$0.00	$0.04	$0.14	$1.12	$2.32	$5.03
Lost utility revenues	$0.01	$0.07	$0.19	$0.38	$0.72	$1.29
Pottsboro						
Monetary value of domestic water shortages	$0.00	$0.52	$6.63	$12.35	$16.91	$22.91
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.80	$1.30	$3.12
Lost jobs due to reduced commercial business activity	0	0	0	32	52	125
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.12	$0.20	$0.48
Lost utility revenues	$0.00	$0.47	$1.38	$2.27	$3.16	$3.63
Princeton						
Monetary value of domestic water shortages	$0.01	$0.78	$2.31	$19.44	$41.25	$82.47
Lost utility revenues	$0.03	$1.32	$3.03	$6.28	$12.22	$20.07
Prosper						
Monetary value of domestic water shortages	$0.00	$0.83	$13.73	$40.82	$34.15	$39.78
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$9.43	$11.96
Lost jobs due to reduced commercial business activity	0	0	0	0	298	377
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$1.34	$1.70
Lost utility revenues	$0.35	$1.40	$4.89	$12.88	$25.36	$29.60
R-H-C WSC						
Monetary value of domestic water shortages	$0.01	$0.27	$0.55	$2.77	$3.84	$4.66
Lost utility revenues	$0.02	$0.48	$0.75	$0.94	$1.09	$1.19
Red Oak						
Monetary value of domestic water shortages	$0.00	$0.91	$1.26	$1.47	$2.52	$11.33
Lost utility revenues	$0.00	$1.89	$2.63	$3.06	$4.15	$5.72
Reno						
Monetary value of domestic water shortages	$0.004	$0.01	$0.04	$0.07	$0.10	$0.15
Lost utility revenues	$0.01	$0.04	$0.10	$0.14	$0.18	$0.23

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Rhome						
Monetary value of domestic water shortages	$1.22	$2.37	$4.58	$12.13	$22.93	$32.03
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$1.51	$2.46
Lost jobs due to reduced commercial business activity	0	0	0	0	60	98
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.23	$0.38
Lost utility revenues	$0.38	$0.49	$1.13	$2.51	$4.22	$5.93
Rice						
Monetary value of domestic water shortages	$0.00	$0.00	$0.03	$0.07	$0.14	$0.28
Lost utility revenues	$0.00	$0.00	$0.06	$0.14	$0.24	$0.38
Rice WSC						
Monetary value of domestic water shortages	$0.00	$0.02	$0.17	$0.38	$0.83	$1.50
Lost utility revenues	$0.00	$0.05	$0.36	$0.72	$1.25	$1.98
Richardson						
Monetary value of domestic water shortages	$0.50	$8.82	$17.12	$73.14	$93.11	$116.57
Lost utility revenues	$1.61	$18.32	$28.18	$34.69	$40.22	$44.20
Richland Hills						
Monetary value of domestic water shortages	$0.01	$0.07	$0.25	$0.44	$0.73	$2.86
Lost utility revenues	$0.03	$0.20	$0.57	$0.91	$1.20	$1.45
River Oaks						
Monetary value of domestic water shortages	$0.01	$0.08	$0.27	$1.60	$2.18	$3.15
Lost utility revenues	$0.03	$0.22	$0.56	$0.81	$1.01	$1.19
Roanoke						
Monetary value of domestic water shortages	$0.02	$0.25	$1.14	$2.71	$20.38	$35.90
Lost utility revenues	$0.04	$0.54	$1.93	$3.55	$6.04	$8.74
Rockett SUD						
Monetary value of domestic water shortages	$1.67	$9.09	$11.34	$23.96	$31.04	$41.18
Lost income from reduced commercial business activity	$0.00	$1.24	$1.37	$1.50	$1.67	$1.92
Lost jobs due to reduced commercial business activity	0	50	55	60	67	77
Lost state and local taxes from reduced commercial business activity	$0.00	$0.19	$0.21	$0.23	$0.26	$0.30
Lost utility revenues	$0.43	$3.55	$5.83	$8.55	$10.86	$12.63

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Rockwall						
Monetary value of domestic water shortages	$0.07	$4.72	$10.27	$48.50	$69.79	$84.75
Lost utility revenues	$0.23	$8.75	$16.90	$24.50	$29.35	$32.14
Rowlett						
Monetary value of domestic water shortages	$0.10	$3.28	$7.34	$32.39	$43.99	$61.36
Lost utility revenues	$0.31	$6.82	$12.08	$16.36	$20.18	$23.27
Royce City						
Monetary value of domestic water shortages	$0.03	$0.87	$2.21	$10.05	$17.13	$39.80
Lost utility revenues	$0.08	$2.22	$4.73	$7.71	$11.06	$14.61
Runaway Bay						
Monetary value of domestic water shortages	$0.002	$0.04	$0.15	$1.31	$2.02	$3.24
Lost utility revenues	$0.01	$0.08	$0.27	$0.45	$0.63	$0.83
Sachse						
Monetary value of domestic water shortages	$0.04	$1.21	$2.93	$12.94	$17.59	$21.36
Lost utility revenues	$0.13	$2.58	$4.60	$5.66	$6.61	$7.24
Saginaw						
Monetary value of domestic water shortages	$0.03	$0.32	$1.18	$7.71	$11.11	$16.67
Lost utility revenues	$0.09	$0.82	$2.45	$3.89	$5.14	$6.32
Saint Paul						
Monetary value of domestic water shortages	$0.002	$0.11	$0.43	$4.45	$6.74	$9.45
Lost utility revenues	$0.01	$0.25	$0.77	$1.51	$2.10	$2.42
Sanger						
Monetary value of domestic water shortages	$18.22	$30.00	$49.42	$62.04	$71.00	$75.27
Lost income from reduced commercial business activity	$0.00	$10.84	$18.11	$23.12	$26.95	$28.88
Lost jobs due to reduced commercial business activity	0	342	571	729	850	911
Lost state and local taxes from reduced commercial business activity	$0.00	$1.54	$2.58	$3.30	$3.84	$4.12
Lost utility revenues	$2.03	$4.19	$6.53	$8.12	$9.32	$9.90
Sansom Park Village						
Monetary value of domestic water shortages	$0.03	$0.03	$0.04	$0.05	$0.06	$0.07
Lost utility revenues	$0.09	$0.08	$0.11	$0.12	$0.13	$0.16

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Sardis-Lone Elm WSC						
Monetary value of domestic water shortages	$19.60	$38.89	$52.20	$51.47	$48.61	$48.61
Lost income from reduced commercial business activity	$1.76	$3.37	$19.79	$19.43	$19.25	$19.25
Lost jobs due to reduced commercial business activity	111	213	624	613	607	607
Lost state and local taxes from reduced commercial business activity	$0.50	$0.96	$2.82	$2.77	$2.74	$2.74
Lost utility revenues	$3.63	$5.75	$7.83	$7.71	$7.65	$7.65
Scurry						
Monetary value of domestic water shortages	$0.002	$0.03	$0.07	$0.41	$0.61	$0.85
Lost utility revenues	$0.01	$0.05	$0.10	$0.14	$0.19	$0.24
Seagoville						
Monetary value of domestic water shortages	$0.18	$0.93	$1.40	$6.01	$9.34	$12.09
Lost utility revenues	$0.45	$1.69	$2.28	$3.03	$3.93	$5.08
Seven Points						
Monetary value of domestic water shortages	$0.002	$0.02	$0.09	$0.78	$1.22	$2.05
Lost utility revenues	$0.01	$0.05	$0.16	$0.26	$0.38	$0.52
Shady Shores						
Monetary value of domestic water shortages	$0.00	$3.14	$7.55	$8.22	$8.78	$9.36
Lost income from reduced commercial business activity	$0.00	$0.26	$0.50	$0.57	$0.62	$0.67
Lost jobs due to reduced commercial business activity	0	10	20	23	25	27
Lost state and local taxes from reduced commercial business activity	$0.00	$0.04	$0.08	$0.09	$0.10	$0.10
Lost utility revenues	$0.00	$0.75	$1.14	$1.23	$1.30	$1.35
Sherman						
Monetary value of domestic water shortages	$0.00	$0.00	$0.63	$2.29	$5.66	$36.62
Lost utility revenues	$0.00	$0.00	$1.84	$5.33	$10.48	$18.50
South Grayson						
Monetary value of domestic water shortages	$0.00	$0.87	$1.93	$3.80	$6.29	$9.18
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.27	$0.87	$1.28
Lost jobs due to reduced commercial business activity	0	0	0	11	35	52
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.04	$0.13	$0.20
Lost utility revenues	$0.00	$0.23	$0.45	$0.71	$1.00	$1.37

Municipal ($millions)	2010	2020	2030	2040	2050	2060
Southlake						
Monetary value of domestic water shortages	$0.23	$0.83	$2.85	$7.33	$28.19	$42.94
Lost utility revenues	$0.68	$2.16	$5.86	$9.16	$12.36	$15.42
Southmayd						
Monetary value of domestic water shortages	$0.06	$0.93	$2.91	$4.42	$8.26	$11.61
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.61	$1.18	$1.61
Lost jobs due to reduced commercial business activity	0	0	0	24	47	65
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.09	$0.18	$0.25
Lost utility revenues	$0.08	$0.19	$0.36	$0.70	$1.22	$1.61
Southwest Fannin County						
Monetary value of domestic water shortages	$0.002	$0.35	$2.08	$2.83	$3.31	$4.70
Lost utility revenues	$0.01	$0.65	$1.05	$1.31	$1.53	$1.78
Springtown						
Monetary value of domestic water shortages	$3.87	$2.69	$4.96	$9.54	$12.33	$12.49
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.68
Lost jobs due to reduced commercial business activity	0	0	0	0	0	27
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$0.11
Lost utility revenues	$0.58	$0.61	$0.87	$1.18	$1.52	$1.92
Sunnyvale						
Monetary value of domestic water shortages	$0.01	$0.72	$1.87	$12.56	$19.01	$23.60
Lost utility revenues	$0.03	$1.22	$2.45	$3.72	$5.13	$5.74
Talty						
Monetary value of domestic water shortages	$16.39	$34.61	$47.11	$60.96	$78.18	$99.75
Lost income from reduced commercial business activity	$6.58	$13.90	$18.92	$24.48	$31.40	$40.06
Lost jobs due to reduced commercial business activity	208	438	597	772	990	1,263
Lost state and local taxes from reduced commercial business activity	$0.94	$1.98	$2.70	$3.49	$4.48	$5.71
Lost utility revenues	$0.17	$1.69	$2.63	$3.82	$5.44	$7.48
Terrell						
Monetary value of domestic water shortages	$0.02	$2.22	$7.03	$36.90	$58.72	$80.88
Lost utility revenues	$0.07	$5.16	$11.57	$18.64	$24.69	$30.67

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
The Colony						
Monetary value of domestic water shortages	$0.00	$0.98	$1.94	$2.54	$4.09	$16.92
Lost utility revenues	$0.00	$2.55	$4.03	$5.27	$6.73	$8.55
Tioga						
Monetary value of domestic water shortages	$0.00	$2.91	$6.71	$8.44	$9.68	$10.25
Lost income from reduced commercial business activity	$0.00	$0.20	$0.89	$1.13	$1.32	$1.42
Lost jobs due to reduced commercial business activity	0	8	36	45	53	57
Lost state and local taxes from reduced commercial business activity	$0.00	$0.03	$0.14	$0.17	$0.20	$0.22
Lost utility revenues	$0.00	$0.61	$1.06	$1.27	$1.44	$1.53
Tom Beam						
Monetary value of domestic water shortages	$0.06	$0.16	$1.01	$1.46	$2.25	$2.49
Lost utility revenues	$0.11	$0.22	$0.34	$0.45	$0.57	$0.64
Tool						
Monetary value of domestic water shortages	$0.004	$0.05	$0.17	$0.36	$0.39	$0.60
Lost utility revenues	$0.01	$0.10	$0.31	$0.50	$0.70	$0.94
Trenton						
Monetary value of domestic water shortages	$0.00	$0.18	$4.16	$11.26	$20.34	$28.98
Lost income from reduced commercial business activity	$0.00	$0.00	$0.32	$1.16	$1.83	$2.50
Lost jobs due to reduced commercial business activity	0	0	13	46	74	101
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.05	$0.18	$0.28	$0.39
Lost utility revenues	$0.00	$0.25	$0.79	$1.59	$2.66	$3.75
Trophy Club						
Monetary value of domestic water shortages	$0.02	$0.18	$0.77	$1.39	$7.02	$9.89
Lost utility revenues	$0.05	$0.53	$1.59	$2.57	$3.55	$4.58
Two Way SUD						
Monetary value of domestic water shortages	$0.00	$0.34	$2.95	$5.85	$10.78	$14.15
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.69	$0.97
Lost jobs due to reduced commercial business activity	0	0	0	0	28	39
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.11	$0.15
Lost utility revenues	$0.00	$0.54	$1.00	$1.49	$1.97	$2.48

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
Valley View						
Monetary value of domestic water shortages	$0.00	$0.00	$2.11	$5.59	$21.24	$30.11
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.55	$3.03	$4.27
Lost jobs due to reduced commercial business activity	0	0	0	22	121	171
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.08	$0.47	$0.66
Lost utility revenues	$0.00	$0.00	$0.66	$1.37	$3.06	$4.13
Van Alstyne						
Monetary value of domestic water shortages	$0.01	$0.25	$1.08	$2.00	$11.40	$13.02
Lost utility revenues	$0.02	$0.50	$1.69	$2.76	$3.55	$4.05
Walnut Creek SUD						
Monetary value of domestic water shortages	$0.06	$0.00	$67.44	$104.05	$119.60	$135.94
Lost income from reduced commercial business activity	$0.00	$0.00	$11.69	$38.17	$44.70	$49.29
Lost jobs due to reduced commercial business activity	0	0	369	1,204	1,410	1,554
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$1.67	$5.44	$6.37	$7.03
Lost utility revenues	$0.16	$3.31	$10.18	$14.68	$16.52	$17.83
Watauga						
Monetary value of domestic water shortages	$0.03	$0.30	$0.99	$6.41	$8.00	$11.56
Lost utility revenues	$0.10	$0.77	$2.06	$2.97	$3.70	$4.38
Waxahachie						
Monetary value of domestic water shortages	$0.00	$0.05	$0.53	$6.37	$60.58	$114.10
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$68.51
Lost jobs due to reduced commercial business activity	0	0	0	0	0	1,524
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.00	$0.00	$7.29
Lost utility revenues	$0.00	$0.16	$1.37	$6.29	$18.35	$31.03
Weatherford						
Monetary value of domestic water shortages	$0.72	$1.06	$2.50	$4.28	$20.98	$30.67
Lost utility revenues	$2.11	$2.47	$4.63	$7.05	$9.70	$12.90
West Cedar Creek MUD						
Monetary value of domestic water shortages	$0.03	$4.13	$7.04	$16.87	$36.03	$75.28
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$6.29	$19.52	$28.21
Lost jobs due to reduced commercial business activity	0	0	0	198	616	890
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.90	$2.78	$4.02
Lost utility revenues	$0.10	$2.38	$4.33	$6.11	$8.40	$11.26

Municipal ($millions)						
	2010	2020	2030	2040	2050	2060
West Wise Rural SUD						
Monetary value of domestic water shortages	$0.005	$0.05	$0.20	$1.66	$2.51	$4.01
Lost utility revenues	$0.01	$0.12	$0.35	$0.56	$0.78	$1.03
Weston						
Monetary value of domestic water shortages	$0.00	$5.96	$23.43	$80.25	$144.28	$250.96
Lost income from reduced commercial business activity	$0.00	$0.87	$3.39	$11.96	$21.86	$38.35
Lost jobs due to reduced commercial business activity	0	35	136	479	876	1,536
Lost state and local taxes from reduced commercial business activity	$0.00	$0.13	$0.53	$1.85	$3.39	$5.95
Lost utility revenues	$0.00	$1.11	$3.38	$11.10	$20.00	$34.84
Westover Hills						
Monetary value of domestic water shortages	$0.001	$0.03	$0.09	$0.73	$0.99	$1.43
Lost utility revenues	$0.01	$0.06	$0.17	$0.25	$0.31	$0.36
Westworth Village						
Monetary value of domestic water shortages	$0.006	$0.04	$0.15	$0.29	$0.30	$0.45
Lost utility revenues	$0.02	$0.10	$0.26	$0.40	$0.54	$0.71
White Settlement						
Monetary value of domestic water shortages	$0.96	$0.61	$1.26	$5.23	$7.06	$10.45
Lost utility revenues	$1.99	$1.42	$2.08	$2.64	$3.27	$3.96
Whitesboro						
Monetary value of domestic water shortages	$0.00	$0.01	$0.14	$0.36	$0.79	$8.72
Lost utility revenues	$0.00	$0.03	$0.33	$0.64	$1.09	$2.23
Whitewright						
Monetary value of domestic water shortages	$14.58	$12.55	$17.37	$20.86	$24.53	$28.30
Lost income from reduced commercial business activity	$3.18	$5.02	$6.95	$8.35	$9.82	$11.33
Lost jobs due to reduced commercial business activity	100	158	219	263	310	357
Lost state and local taxes from reduced commercial business activity	$0.45	$0.72	$0.99	$1.19	$1.40	$1.62
Lost utility revenues	$1.11	$1.74	$2.41	$2.90	$3.41	$3.93
Willow Park						
Monetary value of domestic water shortages	$0.00	$0.36	$10.17	$9.99	$14.83	$16.49
Lost income from reduced commercial business activity	$0.00	$0.00	$0.00	$0.74	$1.01	$1.21
Lost jobs due to reduced commercial business activity	0	0	0	30	41	48
Lost state and local taxes from reduced commercial business activity	$0.00	$0.00	$0.00	$0.11	$0.16	$0.19
Lost utility revenues	$0.00	$0.50	$1.52	$2.24	$2.73	$3.08

Municipal ($millions)						
	2010	**2020**	**2030**	**2040**	**2050**	**2060**
Wilmer						
Monetary value of domestic water shortages	$0.01	$0.06	$0.11	$0.28	$1.01	$9.16
Lost utility revenues	$0.03	$0.14	$0.23	$0.50	$1.39	$2.85
Woodbine WSC						
Monetary value of domestic water shortages	$0.00	$0.00	$0.04	$0.10	$0.21	$0.31
Lost utility revenues	$0.00	$0.00	$0.11	$0.22	$0.36	$0.52
Wortham						
Monetary value of domestic water shortages	$10.05	$11.86	$13.64	$8.35	$9.13	$9.98
Lost income from reduced commercial business activity	$0.85	$1.00	$1.15	$1.29	$1.41	$1.54
Lost jobs due to reduced commercial business activity	34	40	46	52	57	62
Lost state and local taxes from reduced commercial business activity	$0.13	$0.16	$0.18	$0.20	$0.22	$0.24
Lost utility revenues	$0.76	$0.90	$1.03	$1.16	$1.27	$1.39
Wylie						
Monetary value of domestic water shortages	$0.12	$2.09	$5.05	$24.89	$31.72	$38.38
Lost utility revenues	$0.39	$4.35	$8.30	$12.30	$14.35	$15.72

APPENDIX O

POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES

Table O.1

Potentially Feasible Water Management Strategies for Wholesale Water Providers

Regional

Water Management Strategies	Tarrant Reg Water District	North TX Mun Water Dist	Trinity River Auth	Upper Trinity Reg Water Dist	Dallas Co. PC MUD	Greater Texoma Util Auth	Fort Worth	Dallas (DWU)	Corsicana	Sabine River Authority	Sulphur River Water Dist	Upper Neches River MWA
Conservation*	X	X	X	X	X	X	X	X	X	X	X	X
Expansion of Existing Supplies:												
Continue/Increase Supplies from TRWD			X				X					
Continue/Increase Supplies from DWU				X								
Continue/Increase Supplies from UTRWD												
Continue/Increase Supplies from Fort Worth (TRWD)												
Continue/Increase Supplies from TRA (TRWD)												
Continue/Increase Supplies from NTMWD												
Continue/Increase Supplies from TRWD (Ellis Co. Project)												
Continue/Increase Supplies from Mansfield (TRWD)												
System Operation	X							X				
Temporary overdraft existing lake(s)								X				
Midlothian Pipeline Expansion												
Additional Ray Hubbard yield								X				
Expansion of Treatment and Delivery System	X	X	X	X		X	X	X	X			
Add'l Lake Athens beyond Operational Yield												
Lake Palo Pinto Redistribution of Supplies												
Increase supply line from Dallas												
Connect to Existing Supplies:												
Begin Purchasing from DWU												
Begin Purchasing from NTMWD												
Begin Purchasing from TRWD									X			
Begin Purchasing Treated Water from Azle												
Begin Purchasing from Arlington (TRWD)												
Begin Purchasing from Cedar Hill (DWU)												
Lake Fork Connection								X		X		
Lake Palestine Connection (IBT)								X				X
Toledo Bend project (New IBT)	X	X	X	X				X		X		
Toledo Bend water right amendment (New IBT)										X		
Oklahoma (New IBT)	X	X		X				X				
Forest Grove Reservoir (potential TXU agreement)												
Develop supplies from Joe Pool Lake (TRA)												
Connection to Richland-Chambers									X			
TRA Ellis County Water Supply Project												

Local

Water Management Strategies	Arlington	Argyle WSC	Athens MWA	Bartonville WSC	Bolivar WSC	Dallas County WCID #6	Denton	East Cedar Creek FWSD	Ennis	Forney	Gainesville	Garland	Grand Prairie	Lake Cities Mun Util Auth	Mansfield	Midlothian	Mustang SUD	North Richland Hills	Princeton	Rockwall	Rockett SUD	Seagoville	Sherman	Terrell	Walnut Creek SUD	Waxahachie	Weatherford	West Cedar Creek MUD	Wise Co. WSD
Conservation*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Expansion of Existing Supplies:																													
Continue/Increase Supplies from TRWD	X							X							X						X				X	X	X	X	X
Continue/Increase Supplies from DWU						X	X						X									X				X			
Continue/Increase Supplies from UTRWD		X		X	X									X			X												
Continue/Increase Supplies from Fort Worth (TRWD)													X					X											
Continue/Increase Supplies from TRA (TRWD)																		X											
Continue/Increase Supplies from NTMWD										X		X							X	X				X					
Continue/Increase Supplies from TRWD (Ellis Co. Project)																										X			
Continue/Increase Supplies from Mansfield (TRWD)													X																
System Operation																													
Temporary overdraft existing lake(s)																											X		
Midlothian Pipeline Expansion																X													
Additional Ray Hubbard yield																													
Expansion of Treatment and Delivery System	X		X				X	X		X	X				X	X		X						X	X		X	X	X
Add'l Lake Athens beyond Operational Yield			X																										
Lake Palo Pinto Redistribution of Supplies																													
Increase supply line from Dallas													X																
Connect to Existing Supplies:																													
Begin Purchasing from DWU			X																		X					X			
Begin Purchasing from NTMWD																													
Begin Purchasing from TRWD			X																							X			
Begin Purchasing Treated Water from Azle																									X				
Begin Purchasing from Arlington (TRWD)													X																
Begin Purchasing from Cedar Hill (DWU)													X																
Lake Fork Connection																													
Lake Palestine Connection (IBT)																													
Toledo Bend project (New IBT)																													
Toledo Bend water right amendment (New IBT)																													
Oklahoma (New IBT)							X																						
Forest Grove Reservoir (potential TXU agreement)			X																										
Develop supplies from Joe Pool Lake (TRA)													X			X													
Connection to Richland-Chambers																													
TRA Ellis County Water Supply Project													X								X	X							

Table O.1

Potentially Feasible Water Management Strategies for Wholesale Water Providers

Regional | Local

Water Management Strategies	Tarrant Reg Water District	North TX Mun Water Dist	Trinity River Auth	Upper Trinity Reg Water Dist	Dallas Co. PC MUD	Greater Texoma Util Auth	Fort Worth	Dallas (DWU)	Corsicana	Sabine River Authority	Sulphur River Water Dist	Upper Neches River MWA		Arlington	Argyle WSC	Athens MWA	Bartonville WSC	Bolivar WSC	Dallas County WCID #6	Denton	East Cedar Creek FWSD	Ennis	Forney	Gainesville	Garland	Grand Prairie	Lake Cities Mun Util Auth	Mansfield	Midlothian	Mustang SUD	North Richland Hills	Princeton	Rockwall	Rockett SUD	Seagoville	Sherman	Terrell	Walnut Creek SUD	Waxahachie	Weatherford	West Cedar Creek MUD	Wise Co. WSD
Connect to Existing Supplies (Cont):																																									
Cypress Basin Supplies (Lake'O Pines,Sandlin) (New IBT)	x	x						x																																	
Lake Wright Patman (New IBT)	x	x		x				x																																	
Lake Livingston	x	x						x																																	
Additional Supplies from Lake Palestine (additional IBT)								x																																	
Additional Supplies from Navarro Mills									x																																
Lake Texoma (IBT for NTMWD; new IBT for UTRWD)		x		x																																	x					
Lk Texoma Not Yet Auth - Blend w/ Elm Fork (New IBT)				x				x																																	
Lk Texoma Not Yet Authorized - Desalination (New IBT)	x	x						x																																	
Waxahachie/Rocket SUD/Red Oak from Dallas																																							x			
Wilmer, Hutchins, Palmer, and Ferris Connect to DWU																																									
Additional Richland Chambers/Cedar Creek Pipeline	x																																								
Purchase from Brazos River Authority (New IBT)	x																																								
Interim Lake Fork Use (from Dallas)		x																																							
Interim Treated Water Purchase from Dallas		x																																							
Upper Sabine Basin Supply (IBT)		x																																							
Tarrant County Water System	x		x																																						
Ellis County Water System	x		x																			x																			
Grayson County Water System (IBT)						x																																			
Collin-Grayson Municipal Alliance Pipeline Project (IBT)						x																																			
Cooke County Water System (IBT)						x											x							x																	
Fannin County Water System (IBT)		x				x																																			
East Parker County Water System																																									
Gulf of Mexico - Desalination (New IBT)	x	x						x																																	
Emergency Connection to Dallas							x																																		
Joint Pipeline from East TX (TRWD/DWU) (IBT for DWU)	x							x																																	
Pipeline from NTMWD supply to McKinney						x																																			
Desalination Plant - Northwest Grayson						x																																			
Desalination Plant - RRA, others						x																																			
Add'l Pump Station to deliver Lake Chapman supply (IBT)		x																																							
Additional Steam Electric supply, Freestone Co.			x																																						
Additional Yield from Moss Lake (add'l IBT)																								x																	
Amend Current Water Right						x																																			

Table O.1

Potentially Feasible Water Management Strategies for Wholesale Water Providers

	Regional												Local																												
Water Management Strategies	Tarrant Reg Water District	North TX Mun Water Dist	Trinity River Auth	Upper Trinity Reg Water Dist	Dallas Co. PC MUD	Greater Texoma Util Auth	Fort Worth	Dallas (DWU)	Corsicana	Sabine River Authority	Sulphur River Water Dist	Upper Neches River MWA	Arlington	Argyle WSC	Athens MWA	Bartonville WSC	Bolivar WSC	Dallas County WCID #6	Denton	East Cedar Creek FWSD	Ennis	Forney	Gainesville	Garland	Grand Prairie	Lake Cities Mun Util Auth	Mansfield	Midlothian	Mustang SUD	North Richland Hills	Princeton	Rockwall	Rockett SUD	Seagoville	Sherman	Terrell	Walnut Creek SUD	Waxahachie	Weatherford	West Cedar Creek MUD	Wise Co. WSD
Connect to Existing Supplies (Cont):																																									
Parallel Pipeline from Moss Lake (IBT)																							x																		
Bed & Banks Auth. (Moss Lake & Indirect Reuse) (IBT)																							x																		
Red River Supply to Moss Lake (IBT)																							x																		
Lake Terrell - Irrigation Supply																																				x					
Parallel Pipeline to Boyd/Rhome																																					x				
Reuse:																																									
Return flows above Dallas lakes								x																																	
Dallas Southside Reuse Project								x																																	
Additional Dallas Indirect Reuse Projects								x																																	
TRWD Richland-Chambers Reuse Project	x																																								
TRWD Cedar Creek Reuse Project	x																																								
NTMWD Additional Wilson Creek Reuse		x																																							
NTMWD East Fork Trinity River Reuse		x																																							
NTMWD Direct Reuse for Collin Co Steam Electric		x																																							
TRA Reuse permit for TRA WWTP			x																																						
TRA Reuse contract with Irving for Central WWTP			x																																						
TRA Additional Las Colinas Reuse			x																																						
TRA Dallas Co Steam Electric Reuse			x																																						
TRA Ellis Co Steam Electric Reuse			x																																						
TRA Freestone Co Steam Electric Reuse			x																																						
TRA Kaufman Co Steam Electric Reuse			x																																						
TRA Tarrant Co Irrigation Reuse			x																																						
TRA Denton Co Irrigation Reuse			x																																						
TRA Dallas & Ellis Co Irrigation Reuse			x																																						
TRA Johnson Co Reuse for Johnson Co SUD			x																																						
TRA Lake Grapevine Reuse			x																																						
TRA Joe Pool Lake Reuse			x																																						
Additional TRA Indirect Reuse Projects			x																																						
UTRWD Indirect Reuse of Chapman water				x																																					
Additional UTRWD Indirect Reuse Projects				x																																					
Indirect Reuse of return flows from Ralph Hall				x																																					
Athens Indirect Reuse (IBT)															x																										
Fort Worth Reuse for Tarrant Co Steam Electric							x																																		
Fort Worth Reuse for Parker Co Steam Electric							x																																		
Fort Worth Reclaimed Line													x																												
Increase purchase of treated effluent from Garland																						x																			
Increase Denton direct reuse																			x																						
Increase Denton indirect reuse																			x																						
Reuse for Industrial customer									x																																
Reuse with Dallas																			x																						
Indirect Reuse through Lake Ray Hubbard								x																																	
Indirect Reuse through Lewisville Lake								x																																	

Table O.1

Potentially Feasible Water Management Strategies for Wholesale Water Providers

Regional

Water Management Strategies	Tarrant Reg Water District	North TX Mun Water Dist	Trinity River Auth	Upper Trinity Reg Water Dist	Dallas Co. PC MUD	Greater Texoma Util Auth	Fort Worth	Dallas (DWU)	Corsicana	Sabine River Authority	Sulphur River Water Dist	Upper Neches River MWA
Continued Reuse:												
Direct Reuse for Irrigation							X					
Indirect reuse from Bardwell Lake												
Indirect reuse from Moss Lake												
Add'l indirect reuse - TRA/Waxahachie												
Indirect Reuse to Lake Weatherford												
Reallocation of Reservoir Storage:												
Reallocation of Wright Patman (New IBT)	X	X		X				X				
Reallocation of Texoma (New IBT)	X	X						X				
New Surface Water Projects:												
Lower Bois d'Arc Reservoir (New IBT)		X										
Marvin Nichols I Lake (New IBT)	X	X		X				X				
Ralph Hall Reservoir (New IBT)				X								
George Parkhouse I Lake (New IBT)				X				X				
Lake Columbia (New IBT)								X				
Lake Tehuacana	X											
New Surface Water Project w/ other entities												
Brazos River Supply (IBT)							X					
Lake Fastrill (IBT)								X				
Turkey Peak Reservoir												
Lake Palo Pinto Off Channel Reservoir												
Neches River Diversions (IBT)								X				
New Groundwater:												
Roberts County groundwater	X	X						X				
New Well(s) Near Eagle Mountain Lake	X											
New Well(s) in Carrizo-Wilcox Aquifer												
New Well(s) in Trinity Aquifer												
Additional Wells for Suppliers Already Using GW						X						
Carrizo-Wilcox water from Region G	X	X						X				
Supplemental Wells												
Conjunctive use of Ground & Surface water								X				
Temporary Overdraft of Trinity Aquifer												

Local

Water Management Strategies	Arlington	Argyle WSC	Athens MWA	Bartonville WSC	Bolivar WSC	Dallas County WCID #6	Denton	East Cedar Creek FWSD	Ennis	Forney	Gainesville	Garland	Grand Prairie	Lake Cities Mun Util Auth	Mansfield	Midlothian	Mustang SUD	North Richland Hills	Princeton	Rockwall	Rockett SUD	Seagoville	Sherman	Terrell	Walnut Creek SUD	Waxahachie	Weatherford	West Cedar Creek MUD	Wise Co. WSD
Continued Reuse:																													
Direct Reuse for Irrigation																													
Indirect reuse from Bardwell Lake									X																				
Indirect reuse from Moss Lake											X																		
Add'l indirect reuse - TRA/Waxahachie																										X			
Indirect Reuse to Lake Weatherford																											X		
Reallocation of Reservoir Storage:																													
Reallocation of Wright Patman (New IBT)																													
Reallocation of Texoma (New IBT)																													
New Surface Water Projects:																													
Lower Bois d'Arc Reservoir (New IBT)																													
Marvin Nichols I Lake (New IBT)																													
Ralph Hall Reservoir (New IBT)																													
George Parkhouse I Lake (New IBT)																													
Lake Columbia (New IBT)																													
Lake Tehuacana																													
New Surface Water Project w/ other entities							X																						
Brazos River Supply (IBT)																													
Lake Fastrill (IBT)																													
Turkey Peak Reservoir																													
Lake Palo Pinto Off Channel Reservoir																													
Neches River Diversions (IBT)																													
New Groundwater:																													
Roberts County groundwater																													
New Well(s) Near Eagle Mountain Lake																													
New Well(s) in Carrizo-Wilcox Aquifer			X																										
New Well(s) in Trinity Aquifer				X	X																								
Additional Wells for Suppliers Already Using GW																													
Carrizo-Wilcox water from Region G																													
Supplemental Wells		X		X	X						X		X	X		X	X	X			X			X			X		
Conjunctive use of Ground & Surface water																													
Temporary Overdraft of Trinity Aquifer					X																								

* Note: Specific Conservation Strategies are listed in a separate analysis.
IBT denotes a Permitted Interbasin Transfer.
New IBT denotes an Interbasin Transfer requiring a new IBT permit.

Table O.2 - Potentially Feasible Water Management Strategies for Collin County Municipal WUGs

Water Management Strategies	Allen	Anna	Blue Ridge	Caddo Basin SUD	Celina	County Other	Culleoka WSC	Dallas	Danville WSC	East Fork SUD	Fairview	Farmersville	Frisco	Garland	Hickory Creek SUD	Josephine	Lavon WSC	Lowry Crossing	Lucas	Marilee SUD	McKinney	Melissa	Milligan WSC	Murphy	Nevada	New Hope	North Collin WSC	Parker	Plano	Princeton	Prosper	Richardson	Royse City	Sachse	Saint Paul	South Grayson WSC	Weston	Wylie
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from NTMWD		X	X		X										X							X														X	X	
Continue/Increase Supplies from NTMWD	X			X		X				X	X	X	X	X		X	X		X		X		X	X	X		X	X	X	X	X	X	X	X	X			X
Continue/Increase Supplies from Princeton (NTMWD)							X																															
Continue/Increase Supplies from McKinney (NTMWD)									X													X																
Continue/Increase Supplies from Milligan WSC (NTMWD)																		X																				
Continue/Increase Supplies fr N. Collin WSC (NTMWD)																										X												
Continue/Increase Supplies from DWU								X																														
Continue/Increase Supplies from UTRWD					X																																	
Begin Purchasing from UTRWD																				X											X							
Fannin County Water Supply Project															X																							
Grayson County Water Supply Project					X															X																X		
Collin Grayson Municipal Alliance Project																																				X		
Celina Connection to GTUA					X																																	
Celina Connection to NTMWD					X																																	
Begin Purchasing from GTUA		X																				X														X	X	
Begin Purchasing from Sherman																				X																		
NTMWD/GTUA Supply System		X																				X														X	X	
Expansion of Treatment and Delivery System																																						
Reuse													X																					X				
New Well(s) in Trinity Aquifer		X																		X																		
New Well(s) in Woodbine Aquifer		X	X												X					X																		
Temporary Overdraft Trinity Aquifer					X															X																		
Temporary Overdraft Woodbine Aquifer		X	X																	X											X						X	
Supplement Well(s) in Trinity Aquifer		X			X	X							X							X																X		
Supplemental Well(s) in Woodbine Aquifer		X	X			X									X					X		X									X					X	X	

Table O.3 - Potentially Feasible Water Management Strategies for Cooke County Municipal WUGs

Water Management Strategies	Bolivar WSC	County Other	Gainesville	Kiowa Homeowners WSC	Lindsay	Muenster	Two Way WSC	Valley View	Woodbine WSC
Conservation	X	X	X	X	X	X	X	X	X
Continue/Increase Supplies from NTMWD									
Begin Purchasing from UTRWD	X								
Purchase from Boliver WSC (UTRWD)								X	
Purchase from UTRWD (Lake Chapman)		X							
Purchase from UTRWD (Reuse)		X							
Cooke County Water Supply Project (Interbasin Transfer)	X	X	X	X	X			X	X
Grayson County Water Supply Project							X		
Additional Yield from Moss Lake (Interbasin Transfer)			X						
Parallel Pipeline from Moss Lake (Interbasin Transfer)			X						
Treatment facilities for additional supply			X			X			
Lake Muenster (Interbasin Transfer)						X			
Red River Supply to Moss Lake (Interbasin Transfer)			X						
Indirect Reuse-Moss Lake (Interbasin Transfer)			X						
Bed & Banks Auth (Moss Lake & Indirect Reuse) (Interbasin Transfer)			X						
Negotiate Subordination Agreement						X			
Purchase water distirbution system								X	
New Well(s) in Trinity Aquifer	X	X				X		X	
Temporary Overdraft Trinity Aquifer	X	X	X		X	X	X	X	X
Supplemental Wells in Trinity Aquifer	X	X	X	X	X	X	X	X	X

Table O.4 - Potentially Feasible Water Management Strategies for Dallas County Municipal WUGs

Water Management Strategies	Addison	Balch Springs	Carrollton	Cedar Hill	Cockrell Hill	Combine	Combine WSC	Coppell	County Other	Dallas	Dallas Co WCID #6	De Soto	Duncanville	East Fork SUD	Farmers Branch	Garland	Glenn Heights	Grand Prairie	Grapevine	Highland Park	Hutchins	Irving	Lancaster	Lewisville	Mesquite	Ovilla	Richardson	Rockett SUD	Rowlett	Sachse	Sardis-Lone Elm WSC	Seagoville	Sunnyvale	University Park	Wilmer	Wylie
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Continue/Increase Supplies from NTMWD														X		X									X		X		X	X			X			X
Begin Purchasing from DWU							X												X							X		X			X		X		X	
Continue/Increase Supplies from DWU	X		X	X	X			X	X	X	X	X	X		X		X	X			X	X	X	X								X			X	
Continue/Increase Supplies from Dallas Co WCID #6		X																																		
Continue/Increase Supplies from Combine WSC (DWU)						X																														
Continue/Increase Supplies from Seagoville (DWU)							X																													
Continue/Increase Supplies from Cedar Hill (DWU)																										X										
Begin Purchasing from Arlington (TRWD)																		X																		
Begin Purchasing from Cedar Hill (DWU)																		X																		
Begin Purchasing from DWU directly; construct facilities							X																													
Begin Purchasing from UTRWD																								X												
Begin Purchasing from TRA (Joe Pool)													X					X																		
Begin Purchasing from TRWD																												X								
Develop Joe Pool Lake supply				X																																
Continue/Increase Supplies from TRA (TRWD)																			X												X					
TRA Ellis Co Water Supply Project																		X										X								
Continue/Increase Supplies from Ft Worth (TRWD)																		X																		
Continue/Increase Supplies Mansfield (TRWD)																		X																		
Continue/Inrease Supplies from DCPCMUD																																				
Continue/Increase Supplies from Midlothian																		X										X			X					
Continue/Increase Supplies from Waxahachie																												X								
Continue/Increase Supplies from TRWD (Ellis Co Project)																												X								
Continue/Increase Supplies from Rockett SUD																							X													
Lake Chapman																						X														
Oklahoma Water																						X														
Participate in Marvin Nichols I Reservoir																						X														
New water treatment plant (Dallas County Other)																																				
Expansion of Treatment and Delivery System							X																	X				X								
Ralph Hall Lake																						X														
Wilmer, Hutchins, Palmer, Ferris Connection to DWU																					X														X	
Waxahachie/Rockett SUD/Red Oak from Dallas																												X			X					
Increase supply line capacity from Dallas																		X																		
Lake Wright Patman																						X														
Reuse																						X								X						
Irving Indirect Reuse																						X														
Direct Reuse																						X														
Indirect Reuse																			X																	
TRA Reuse																																				
Purchase Reuse water from DCPCMUD (Lake Grapevine)																			X																	
Aquifer Storage and Recovery (ASR)	X																																			
Temporary Overdraft Trinity Aquifer																															X				X	
Supplemental Wells Trinity Aquifer			X	X					X			X					X	X													X				X	
Supplemental Wells Woodbine Aquifer				X					X								X									X										

Table O.5 - Potentially Feasible Water Management Strategies for Denton County Municipal WUGs

Water Management Strategies	Argyle	Argyle WSC	Aubrey	Bartonville	Bartonville WSC	Bolivar WSC	Carrollton	Celina	Coppell	Copper Canyon	Corinth
Conservation	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from UTRWD						X					
Begin Purchasing from NTMWD								X			
Continue/Increase Supplies from UTRWD		X	X		X			X			X
Continue/Increase Supplies from Arglye WSC (UTRWD)	X										
Continue/Increase Supplies from Bartonville WSC (UTRWD)				X						X	
Continue/Increase Supplies from Denton (UTRWD)											
Continue/Increase Supplies from Mustang SUD (UTRWD)											
Continue/Increase Supplies from Lake Cities MUA (UTRWD)											
Continue/Increase Supplies from NTMWD											
Continue/Increase Supplies from Plano (NTMWD)											
Continue/Increase Supplies from DWU							X		X		
Continue/Increase Supplies from TRWD											
Continue/Increase Supplies from Fort Worth (TRWD)											
Cont/Incr Supplies from Trophy Club MUD #1 (Ft Worth, TRWD)											
Purchase water from UTRWD (Lake Chapman)											
Purchase water from Carrollton (DWU)											
Connection to Little Elm, Frisco, or NTMWD											
Expansion of Treatment and Delivery System											
Emergency Connection to Dallas											
New Surface Water Project w/ other entities											
Oklahoma Water w/ TRWD/UTRWD (New Interbasin Transfer)											
Brazos River Supply (New Interbasin Transfer)											
Grayson County Water Supply Project								X			
Cooke County Water Supply Project						X					
Purchase water from UTRWD (reuse)											
Increase City of Denton direct reuse											
Increase City of Denton indirect reuse											
Fort Worth Reuse for Tarrant Co Steam Electric											
Fort Worth Reuse for Parker Co Steam Electric											
Reuse with Dallas											
Direct Reuse											
Aquifer Storage and Recovery (ASR)											
New Well(s) in Trinity Aquifer					X	X					
New Well(s) in Woodbine Aquifer											
Temporary Overdraft Trinity Aquifer						X					
Temporary Overdraft Woodbine Aquifer											
Supplemental Wells in Trinity Aquifer		X	X		X	X	X	X		X	X
Supplemental Wells in Woodbine Aquifer								X			

Water Management Strategies	County Other	Cross Roads	Dallas	Denton	Denton Co FWSD#1A	Double Oak	Flower Mound	Fort Worth	Frisco	Hackberry	Hebron
Conservation	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from UTRWD											X
Begin Purchasing from NTMWD											
Continue/Increase Supplies from UTRWD	X				X		X				
Continue/Increase Supplies from Arglye WSC (UTRWD)											
Continue/Increase Supplies from Bartonville WSC (UTRWD)						X					
Continue/Increase Supplies from Denton (UTRWD)											
Continue/Increase Supplies from Mustang SUD (UTRWD)		X									
Continue/Increase Supplies from Lake Cities MUA (UTRWD)											
Continue/Increase Supplies from NTMWD									X	X	
Continue/Increase Supplies from Plano (NTMWD)											
Continue/Increase Supplies from DWU			X	X	X		X				X
Continue/Increase Supplies from TRWD								X			
Continue/Increase Supplies from Fort Worth (TRWD)	X										
Cont/Incr Supplies from Trophy Club MUD #1 (Ft Worth, TRWD)											
Purchase water from UTRWD (Lake Chapman)	X										
Purchase water from Carrollton (DWU)											
Connection to Little Elm, Frisco, or NTMWD										X	
Expansion of Treatment and Delivery System				X				X			
Emergency Connection to Dallas								X			
New Surface Water Project w/ other entities				X							
Oklahoma Water w/ TRWD/UTRWD (New Interbasin Transfer)				X							
Brazos River Supply (New Interbasin Transfer)								X			
Grayson County Water Supply Project											
Cooke County Water Supply Project											
Purchase water from UTRWD (reuse)	X										
Increase City of Denton direct reuse				X							
Increase City of Denton indirect reuse				X							
Fort Worth Reuse for Tarrant Co Steam Electric								X			
Fort Worth Reuse for Parker Co Steam Electric								X			
Reuse with Dallas				X							
Direct Reuse									X		
Aquifer Storage and Recovery (ASR)											
New Well(s) in Trinity Aquifer											
New Well(s) in Woodbine Aquifer											
Temporary Overdraft Trinity Aquifer											
Temporary Overdraft Woodbine Aquifer											X
Supplemental Wells in Trinity Aquifer	X								X	X	
Supplemental Wells in Woodbine Aquifer	X										X

Water Management Strategies	Hickory Creek	Highland Village	Justin	Krugerville	Krum	Lake Dallas	Lewisville	Lincoln Park	Little Elm	Mustang SUD	Northlake
Conservation	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from UTRWD					X		X				X
Begin Purchasing from NTMWD											
Continue/Increase Supplies from UTRWD		X	X		X			X		X	
Continue/Increase Supplies from Arglye WSC (UTRWD)											
Continue/Increase Supplies from Bartonville WSC (UTRWD)											
Continue/Increase Supplies from Denton (UTRWD)											
Continue/Increase Supplies from Mustang SUD (UTRWD)				X				X			
Continue/Increase Supplies from Lake Cities MUA (UTRWD)	X					X					
Continue/Increase Supplies from NTMWD									X		
Continue/Increase Supplies from Plano (NTMWD)									X		
Continue/Increase Supplies from DWU							X				
Continue/Increase Supplies from TRWD											
Continue/Increase Supplies from Fort Worth (TRWD)											X
Cont/Incr Supplies from Trophy Club MUD #1 (Ft Worth, TRWD)											
Purchase water from UTRWD (Lake Chapman)											
Purchase water from Carrollton (DWU)											
Connection to Little Elm, Frisco, or NTMWD											
Expansion of Treatment and Delivery System							X				
Emergency Connection to Dallas											
New Surface Water Project w/ other entities											
Oklahoma Water w/ TRWD/UTRWD (New Interbasin Transfer)											
Brazos River Supply (New Interbasin Transfer)											
Grayson County Water Supply Project											
Cooke County Water Supply Project											
Purchase water from UTRWD (reuse)											
Increase City of Denton direct reuse											
Increase City of Denton indirect reuse											
Fort Worth Reuse for Tarrant Co Steam Electric											
Fort Worth Reuse for Parker Co Steam Electric											
Reuse with Dallas											
Direct Reuse											
Aquifer Storage and Recovery (ASR)											
New Well(s) in Trinity Aquifer				X							
New Well(s) in Woodbine Aquifer									X		
Temporary Overdraft Trinity Aquifer			X	X	X						
Temporary Overdraft Woodbine Aquifer									X		
Supplemental Wells in Trinity Aquifer		X	X	X	X	X		X		X	
Supplemental Wells in Woodbine Aquifer	X					X			X		X

Water Management Strategies	Oak Point	Pilot Point	Plano	Ponder	Prosper	Roanoke	Sanger	Shady Shores	Southlake	The Colony	Trophy Club
Conservation	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from UTRWD		X		X							
Begin Purchasing from NTMWD											
Continue/Increase Supplies from UTRWD					X		X				
Continue/Increase Supplies from Arglye WSC (UTRWD)											
Continue/Increase Supplies from Bartonville WSC (UTRWD)											
Continue/Increase Supplies from Denton (UTRWD)							X				
Continue/Increase Supplies from Mustang SUD (UTRWD)	X										
Continue/Increase Supplies from Lake Cities MUA (UTRWD)								X			
Continue/Increase Supplies from NTMWD			X		X					X	
Continue/Increase Supplies from Plano (NTMWD)										X	
Continue/Increase Supplies from DWU										X	
Continue/Increase Supplies from TRWD											
Continue/Increase Supplies from Fort Worth (TRWD)						X			X		X
Cont/Incr Supplies from Trophy Club MUD #1 (Ft Worth, TRWD)						X					X
Purchase water from UTRWD (Lake Chapman)											
Purchase water from Carrollton (DWU)											
Connection to Little Elm, Frisco, or NTMWD											
Expansion of Treatment and Delivery System											
Emergency Connection to Dallas											
New Surface Water Project w/ other entities											
Oklahoma Water w/ TRWD/UTRWD (New Interbasin Transfer)											
Brazos River Supply (New Interbasin Transfer)											
Grayson County Water Supply Project											
Cooke County Water Supply Project											
Purchase water from UTRWD (reuse)											
Increase City of Denton direct reuse											
Increase City of Denton indirect reuse											
Fort Worth Reuse for Tarrant Co Steam Electric											
Fort Worth Reuse for Parker Co Steam Electric											
Reuse with Dallas											
Direct Reuse											
Aquifer Storage and Recovery (ASR)										X	
New Well(s) in Trinity Aquifer		X		X							
New Well(s) in Woodbine Aquifer											
Temporary Overdraft Trinity Aquifer		X									
Temporary Overdraft Woodbine Aquifer					X						
Supplemental Wells in Trinity Aquifer	X	X		X		X	X	X		X	X
Supplemental Wells in Woodbine Aquifer					X			X			

Table O.6 - Potentially Feasible Water Management Strategies for Ellis County Municipal WUGs

Water Management Strategies	Bardwell	Brandon Irene WSC	Buena Vista-Bethel SUD	Cedar Hill	Community Water Co.	County Other	Ennis	Ferris	Files Valley WSC	Glenn Heights	Grand Prairie	Italy	Johnson Co SUD	Mansfield	Maypearl	Midlothian	Milford	Mountain Peak SUD	Oak Leaf	Ovilla	Palmer	Pecan Hill	Red Oak	Rice WSC	Rockett SUD	Sardis-Lone Elm WSC	Venus	Waxahachie
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from DWU								X					X					X		X	X		X		X	X		X
Continue/Increase Supplies from DWU				X						X	X								X									
Continue/Increase Supplies from Cedar Hill (DWU)																				X								
Begin Purchasing from TRWD																		X							X		X	
Continue/Increase Supplies from TRWD											X			X		X												
Continue/Increase Supplies from Aquilla WSC																												
Continue/Increase Supplies from Files Valley WSC (Lake Aquilla)																	X											
Continue/Increase Supplies from Fort Worth (TRWD)											X																	
Begin Purchasing from TRA (Joe Pool)											X																	
Develop Joe Pool Lake supply				X																								
Begin Purchasing from Arlington (TRWD)											X																	
Begin Purchasing from Cedar Hill (DWU)											X																	
Begin Purchasing from TRA (TRWD)	X		X			X	X		X																	X		
Begin Purchasing from TRA (Bardwell Lake)							X																					
Pipeline Connection to TRWD							X																					
TRA Ellis County Water Supply Project			X				X	X			X	X			X			X			X		X	X	X		X	
Continue/Increase Supplies from Mansfield (TRWD)																												
Continue/Increase Supplies from Corsicana					X																			X				
Continue/Increase Supplies from Ennis					X																			X				
Continue/Increase Supplies Mansfield (TRWD)											X		X															
Continue/Increase Supplies from Rockett SUD								X											X		X	X	X					X
Continue/Increase Supplies from Midlothian Water District																		X							X	X	X	
Continue/Increase Supplies from TRWD (Ellis Co Project)																									X			X
Continue/Increase Supplies from Waxahachie																									X			
Expansion of Treatment and Delivery System														X		X									X			X
Midlothian Pipeline Expansion																X												
Connection to TRWD																X												
Wilmer, Hutchins, Palmer, & Ferris Connection to DWU								X													X							
Waxahachie/Rockett SUD/Red Oak from Dallas			X					X										X			X	X	X		X	X		X
Increase supply line capacity from Dallas											X																	
Begin purchasing supplies from DWU																												X
BRA System Operations Permit		X																										
Additional Joe Pool Lake																X												
Puchase from Upper Neches River MA																		X										
Begin purchasing water from Grand Prairie													X															
Ennis Indirect Reuse							X																					
TRA Dallas Co Reuse													X															
TRA/Waxahachie Indirect Reuse																												X
New Well(s) in Trinity Aquifer																		X								X		
New Well(s) in Woodbine Aquifer	X											X			X													
New Well(s) in Carrizo-Wilcox Aquifer					X																							
Temporary Overdraft Trinity Aquifer												X						X								X		
Temporary Overdraft Woodbine Aquifer						X									X						X		X					
Supplemental Wells in Trinity Aquifer			X	X		X				X	X	X			X			X							X	X		
Supplemental Wells in Woodbine Aquifer	X			X				X	X			X			X		X			X	X		X				X	
Supplemental Wells in Other Aquifer																						X						

Table O.7 - Potentially Feasible Water Management Strategies for Fannin County Municipal WUGs

Water Management Strategies	Bonham	Ector	County Other	Hickory Creek SUD	Honey Grove	Ladonia	Leonard	North Hunt WSC	Savoy	SW Fannin Co SUD	Trenton	Whitewright
Conservation	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from NTMWD	X	X	X	X	X	X	X	X		X	X	X
Fannin County Water Supply Project	X	X	X	X	X	X	X	X	X	X	X	
Grayson County Water Supply Project			X									X
Ralph Hall Lake						X						
Additional Lake Tawakoni Supply								X				
Additional Lake Bonham	X											
New Well(s) In Trinity or Woodbine Aquifer		X	X	X		X				X		X
Temporary Overdraft Woodbine Aquifer			X			X	X		X	X		X
Reallocate supply in Woodbine Aquifer					X							
Supplemental Wells in Trinity Aquifer			X			X		X				
Supplemental Wells in Woodbine Aquifer		X	X	X	X		X	X	X	X	X	X

Table O.8 - Potentially Feasible Water Management Strategies for Freestone County Municipal WUGs

Water Management Strategies	County Other	Fairfield	Flo Community WSC	Teague	Wortham
Conservation	X	X	X	X	X
Begin Purchasing from TRWD		X			X
Continue Purchasing from TRWD	X				
Purchase water from Mexia					X
Purchase water from Corsicana					X
New water treatment plant		X			
Water treatment plant expansion/rehabilitation					X
New Well(s) in Carrizo-Wilcox Aquifer	X	X	X	X	
Supplemental Well(s) in Carrizo-Wilcox Aquifer	X	X	X	X	

Table O.9 - Potentially Feasible Water Management Strategies for Grayson County Municipal WUGs

Water Management Strategies	Bells	Collinsville	County Other	Denison	Gunter	Howe	Luella WSC	Marilee SUD	Pottsboro	Sherman	South Grayson WSC	Southmayd	SW Fannin Co SUD	Tioga	Tom Bean	Two Way WSC	Van Alstyne	Whitesboro	Whitewright	Woodbine WSC
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from NTMWD			X			X			X		X		X				X		X	
Continue/Increase Supplies from Denison									X											
Continue/Increase Supplies from GTUA										X										
Begin Purchasing from Sherman					X			X												
Additional Lake Texoma				X						X										
Grayson County Water Supply Project	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fannin County Water Supply Project			X										X							
Cooke County Water Supply Project			X																	X
Begin Purchasing from GTUA			X			X		X	X		X						X			
NTMWD/GTUA Supply System			X			X			X		X						X			
Expansion of treatment and delivery system				X						X										
Collin-Grayson Municipal Alliance											X						X			
New Well(s) In Trinity Aquifer		X	X		X		X	X				X		X	X		X		X	
New Well(s) In Woodbine Aquifer	X		X		X		X	X		X		X			X		X		X	
Temporary Overdraft Trinity Aquifer	X	X	X		X		X							X		X	X	X		X
Reallocate Trinity Aquifer	X									X	X					X		X		
Reallocate Woodbine Aquifer			X								X									
Temporary Overdraft Woodbine Aquifer	X		X			X	X	X				X	X		X		X		X	
Supplemental Wells In Trinity Aquifer	X	X	X	X	X	X				X	X	X		X		X	X	X		X
Supplemental Wells In Woodbine Aquifer	X		X				X	X	X	X	X	X	X		X		X		X	

Table O.10 - Potentially Feasible Water Management Strategies for Henderson County Municipal WUGs

Water Management Strategies	Athens	Bethel-Ash WSC	County Other	East Cedar Ck FWSD	Eustace	Gun Barrel City	Log Cabin	Mabank	Malakoff	Payne Springs	Seven Points	Tool	Trinidad	Virginia Hills WSC	West Cedar Ck MUD
Conservation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Additional Lake Athens beyond Operation Yield	x														
Continue Purchasing from TRWD									x						
Continue/Increase Supplies from TRWD			x	x		x		x							x
Continue/Increase Supplies from East Cedar Ck FWSD (TRWD)						x									
Continue/Increase Supplies from West Cedar Ck MUD (TRWD)											x	x			
Cooke County Water Supply Project															
Lake Palestine (Interbasin Transfer)	x														
Cedar Creek Lake (Interbasin Transfer)	x														
Forest Grove Lake	x														
Expansion of treatment and delivery system				x				x							
Indirect Reuse (Athens MWA) (Interbasin Transfer)	x														
New Well(s) in Carrizo-Wilcox Aquifer	x	x			x		x			x					
Supplemental Wells in Carrizo-Wilcox	x	x	x		x		x		x	x				x	
Temporary Overdraft Carrizo-Wilcox Aquifer		x													

Table O.11 - Potentially Feasible Water Management Strategies for Jack County Municipal WUGs

Water Management Strategies	Bryson	County-Other	Jacksboro
Conservation	X	X	X
Lake Jacksboro/Lost Creek System	X		X
Purchase water from Graham	X		
Purchase water from Bryson		X	
Purchase water from Jacksboro		X	
Water Treatment Plant Expansion			X
Use groundwater from Cisco Aquifer (new or existing wells)	X		
Supplemental wells in Cisco Aquifer	X		
Supplemental wells in Trinity Aquifer		X	

Table O.12 - Potentially Feasible Water Management Strategies for Kaufman County Municipal WUGs

Water Management Strategies	Ables Springs WSC	College Mound WSC	Combine	Combine WSC	County Other	Crandall	Dallas	Forney	Forney Lake WSC	Gastonia-Scurry WSC	High Point WSC	Kaufman	Kemp	Mabank	MacBee SUD	Mesquite	Oak Grove	Post Oak Bend City	Scurry	Seagoville	Talty	Terrell	West Cedar Ck MUD
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from NTMWD																							
Continue/Increase Supplies from NTMWD		X			X			X	X	X		X				X	X	X	X		X	X	
Continue/Increase Supplies from Kaufman (NTMWD)						X																	
Continue/Increase Supplies from Forney (NTMWD)											X												
Continue/Increase Supplies from TRWD					X								X	X									X
Continue/Increase Supplies from SRA (Interbasin Transfer)	X																					X	
Continue/Increase Supplies from MacBee SUD (SRA)																							
Continue/Increase Supplies from Terrell (NTMWD)		X									X												
Continue/Increase Supplies from Combine WSC			X																				
Continue/Increase Supplies from DWU							X													X			
Continue/Increase Supplies from Seagoville (DWU)				X																			
Begin Purchasing from DWU directly; construct facilities				X		X																	
Begin Purchasing from Seagoville (DWU); construct facilities						X																	
Pipeline to Connect to NTMWD																						X	
Kemp Cedar Creek Lake System Expansion					X								X										
Expansion of Treatment and Delivery System													X	X	X							X	X
Develop delivery point/connection to NTMWD Tawakoni WTP	X																						
Increase Purchase of Treated Effluent from Garland								X															

Table O.13 - Potentially Feasible Water Management Strategies for Navarro County Municipal WUGs

Water Management Strategies	Blooming Grove	Brandon Irene WSC	Chatfield WSC	Community Water Co.	Corsicana	County Other	Dawson	Frost	Kerens	M E N WSC	Navarro Mills WSC	Rice	Rice WSC
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X
Continue/Increase Supplies from NTMWD													
Continue/Increase Supplies from TRWD						X							
Continue/Increase Supplies from Corsicana	X		X	X		X	X	X	X	X	X		X
Continue/Increase Supplies from Chatfield WSC (Corsicana)													
Continue/Increase Supplies from Rice WSC (Corsicana, Ennis)												X	
Continue/Increase Supplies from Aquilla WSC													
Continue/Increase Supplies from Ennis				X									X
Continue/Increase Supplies from Terrell (SRA - Lake Tawakoni)													
Continue/Increase Supplies from TRA													
Connection to Richland-Chambers					X								
Begin Purchasing from TRA							X						
Begin Purchasing from TRWD					X								
New Water Treatment Plant					X		X						
Treatment Plant Expansions					X								
Additional Supply from Lake Navarro Mills					X								
TRA Ellis Co Water Supply Project (Ennis)				X									X
Reuse for Industrial customer					X								
Navarro County Water System													
BRA System Operations Permit		X											
Raw water for steam electric power					X								
New Wells in Carrizo-Wilcox Aquifer				X									
New Wells in Woodbine Aquifer	X										X		
New Wells in Trinity Aquifer	X												
Supplemental Wells				X		X		X					

Table O.14 - Potentially Feasible Water Management Strategies for Parker County Municipal WUGs

Water Management Strategies	Aledo	Annetta	Annetta South	Azle	County-Other	Cresson	Fort Worth	Hudson Oaks	Mineral Wells	Reno	Sanctuary	Springtown	Walnut Creek SUD	Weatherford	Willow Park
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Continue/Increase Supplies from TRWD				X			X					X	X	X	
Begin Purchasing from Ft Worth (TRWD)/Connect to Ft Worth	X														X
Begin Purchasing from Weatherford (TRWD)	X	X	X		X			X							X
Continue/Increase Supplies from Walnut Creek SUD (TRWD)					X					X	X				
Continue/Increase Supplies from Springtown (TRWD)										X					
Temporary overdraft of Lake Weatherford														X	
Parallel Pipeline from Lake Benbrook														X	
Treated water transmission lines to Southest Parker County														X	
Southeast Wise County System													X		
Expansion of Treatment and Delivery System				X			X					X	X	X	
Emergency Connection to Dallas							X								
Brazos River Supply (New Interbasin Transfer)							X								
Parallel Pipeline to Boyd/Rhome													X		
Purchase Treated water from Azle													X		
Turkey Peak Reservoir									X						
Lake Palo Pinto Off Channel Reservoir									X						
Lake Palo Pinto Redistribution of Supplies									X						
Fort Worth Reuse for Tarrant Co Steam Electric							X								
Fort Worth Reuse for Parker Co Steam Electric							X								
Indirect Reuse Lake Weatherford														X	
Direct Reuse							X								
New Well(s) in Trinity Aquifer					X										
New Well(s) in Other Aquifer		X													
Temporary Overdraft Trinity Aquifer	X	X	X		X			X							X
Temporary Overdraft Other Aquifer		X													
Supplemental Wells in Trinity Aquifer	X	X	X		X	X		X	X	X		X			X

Table O.15 - Potentially Feasible Water Management Strategies for Rockwall County Municipal WUGs

Water Management Strategies	Blackland WSC	Cash SUD	County-Other	Dallas	East Fork SUD	Fate	Forney Lake WSC	Heath	High Point WSC	Lavon WSC	McLendon-Chisholm	Mt Zion WSC	R-C-H WSC	Rockwall	Rowlett	Royse City	Wylie
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from NTMWD																	
Continue/Increase Supplies from NTMWD		X	X		X	X	X	X		X				X	X	X	X
Continue/Increase Supplies from Rockwall (NTMWD)	X										X	X	X				
Cont/Incr Supplies from RCH WSC (NTMWD thru Rockwall)								X									
Cont/Incr Supplies from Mt Zion WSC (NTMWD thru Rockwall)													X				
Continue/Increase Supplies from Forney (NTMWD)									X								
Continue/Increase Supplies from Terrell (NTMWD)									X								
Cont/Incr Supplies from Blackland WSC and RCH WSC (NTMWD)											X						
Continue/Increase Supplies from DWU				X													
Continue/Increase Supplies from SRA		X															
Develop delivery point/connection to NTMWD Tawakoni WTP		X															

Table O.16 - Potentially Feasible Water Management Strategies for Tarrant County Municipal WUGs

Water Management Strategies	Arlington	Azle	Bedford	Benbrook	Bethesda WSC	Blue Mound	Burleson	Colleyville	Community WSC	County-Other	Crowley	Dalworth. Gardens	Edgecliff	Euless	Everman	Forest Hill	Fort Worth	Grand Prairie	Grapevine	Haltom City
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from TRWD																				
Continue/Increase Supplies from TRWD	X	X	X	X					X								X			
Continue/Increase Supplies from TRA (TRWD)			X					X						X					X	
Begin Purchasing from Fort Worth (TRWD)																				
Continue/Increase Supplies from Fort Worth (TRWD)					X		X			X	X	X	X		X	X		X		X
Begin Purchasing from Azle (Ft Worth)																				
NE Tarrant Co Regional Water System (from Ft Worth)										X										
Cont/Incr Supplies fr N Richland Hills (Ft Worth)																				
Begin Purchasing from Arlington (TRWD)					X													X		
Continue/Increase Supplies from Tecon (TRWD)						X														
Continue/Increase Supplies from Mansfield (TRWD)																		X		
Begin Purchasing from DWU																			X	
Continue/Increase Supplies from DWU																		X		
Begin Purchasing from TRA (Joe Pool Lake)																		X		
Begin Purchasing from Cedar Hill (DWU)																		X		
TRA Ellis Co Water Supply Project (Midlothian)																		X		
Expansion of Treatment and Delivery System	X	X		X					X								X			
Emergency Connection to Dallas																	X			
Increase supply line capacity from Dallas																		X		
Brazos River Supply (New Interbasin Transfer)																	X			
New WTP																				
Fort Worth Reuse for Tarrant Co Steam Electric																	X			
Fort Worth Reuse for Parker Co Steam Electric																	X			
Fort Worth Reclaimed Line	X													X						
Purchase Reuse water from DCPCMUD (Lake Grapevine)																			X	
TRA Dallas Co Reuse																				
New Well(s) in Trinity Aquifer																				
Temporary Overdraft Trinity Aquifer																				
Supplemental Wells in Trinity Aquifer			X	X	X	X		X		X	X	X		X	X			X		

Water Management Strategies	Haslet	Hurst	Johnson Co SUD	Keller	Kennedale	Lake Worth	Lakeside	Mansfield	North Richland Hills	Pantego	Pelican Bay	Richland Hills	River Oaks	Saginaw	Sansom Park Village	Southlake	Watauga	Westover Hills	Westworth Village	White Settlement
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from TRWD							X				X									
Continue/Increase Supplies from TRWD								X					X							
Continue/Increase Supplies from TRA (TRWD)									X											
Begin Purchasing from Fort Worth (TRWD)					X		X			X										
Continue/Increase Supplies from Fort Worth (TRWD)	X	X		X	X	X			X			X		X	X	X		X	X	X
Begin Purchasing from Azle (Ft Worth)							X				X									
NE Tarrant Co Regional Water System (from Ft Worth)																				
Cont/Incr Supplies fr N Richland Hills (Ft Worth)																	X			
Begin Purchasing from Arlington (TRWD)					X					X										
Continue/Increase Supplies from Tecon (TRWD)																				
Continue/Increase Supplies from Mansfield (TRWD)			X																	
Begin Purchasing from DWU			X																	
Continue/Increase Supplies from DWU																				
Begin Purchasing from TRA (Joe Pool Lake)																				
Begin Purchasing from Cedar Hill (DWU)																				
TRA Ellis Co Water Supply Project (Midlothian)																				
Expansion of Treatment and Delivery System								X												
Emergency Connection to Dallas																				
Increase supply line capacity from Dallas																				
Brazos River Supply (New Interbasin Transfer)																				
New WTP								X												
Fort Worth Reuse for Tarrant Co Steam Electric																				
Fort Worth Reuse for Parker Co Steam Electric																				
Fort Worth Reclaimed Line																				
Purchase Reuse water from DCPCMUD (Lake Grapevine)																				
TRA Dallas Co Reuse			X																	
New Well(s) in Trinity Aquifer					X		X			X	X									X
Temporary Overdraft Trinity Aquifer					X		X			X	X									
Supplemental Wells in Trinity Aquifer	X	X			X	X	X		X	X	X	X			X					X

Table O.17 - Potentially Feasible Water Management Strategies for Wise County Municipal WUGs

Water Management Strategies	Alvord	Aurora	Bolivar WSC	Boyd	Bridgeport	Chico	Community WSC	County-Other	Decatur	Fort Worth	New Fairview	Newark	Paradise	Rhome	Runaway Bay	Walnut Creek SUD	West Wise Rural SUD
Conservation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Begin Purchasing from UTRWD				X													
Continue/Increase supplies from UTRWD			X														
Purchase from UTRWD (Lake Chapman)								X									
Purchase from UTRWD (Reuse)								X									
Begin Purchasing from TRWD	X																
Continue/Increase Supplies from TRWD					X		X	X		X	X	X			X	X	X
Begin Purchasing from Walnut Creek SUD (TRWD)		X		X													
Continue/Increase Supplies from Walnut Creek SUD (TRWD)											X	X		X			
Continue/Increase Supplies from West Wise Rural WSC (TRWD)						X											
Continue/Increase Supplies from Wise County WSD (TRWD)									X								
Cooke County Water Supply Project			X	X													
Southeast Wise County System																X	
Expansion of Treatment and Delivery System					X		X	X	X	X					X	X	X
Emergency Connection to Dallas										X							
Brazos River Supply (New Interbasin Transfer)										X							
Parallel Pipeline to Boyd/Rhome																X	
Purchase Treated water from Azle																X	
Fort Worth Reuse for Tarrant Co Steam Electric										X							
Fort Worth Reuse for Parker Co Steam Electric										X							
Direct Reuse										X							
New Well(s) in Trinity Aquifer	X		X									X					
New Well(s) in Other Aquifer		X															
Temporarily Overdraft Trinity Aquifer			X	X										X			
Temporarily Overdraft Other Aquifer		X															
Supplemental Wells in Trinity Aquifer	X	X	X	X		X		X			X	X	X	X			

APPENDIX P

STRATEGY EVALUATION

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
Name(s)	Name	Name	Name	#	High, medium, low	$	High, medium, low	High, medium, low	High, medium, low	High, medium, low	High, medium, low		
DWU	Multiple	Trinity	Palestine (via TRWD/DWU Integrated Pipeline)	114,337	High	$773	Low	Low	Low	Medium Low	Low[1]	DWU has contract.	Significant change to historical water use. Highly renewable resource should minimize impacts.
Multiple	Multiple	Multiple	Toledo Bend	400,000	High		Medium low	Low	Low	Medium Low	Low	Requires IBT and agreements with multiple users	Significant change to historical water use. Highly renewable resource should minimize impacts.
Multiple	Multiple	Multiple	Toledo Bend	700,000	High	$3,072	Medium low	Low	Low	Medium Low	Low	Requires IBT and agreements with multiple users	Significant change to historical water use. Highly renewable resource should minimize impacts.
Multiple	Multiple	Multiple	Toledo Bend	500,000	High	$3,318	Medium low	Low	Low	Medium Low	Low	Requires IBT and agreements with multiple users	Significant change to historical water use. Highly renewable resource should minimize impacts. Does not include DWU.
NTMWD	Multiple	Multiple	Oklahoma	50,000	High	$477	Low	Low	Low	Medium Low	Medium Low	Oklahoma has moritorium for export of water out of state. May require an IBT.	
DWU	Multiple	Trinity	Oklahoma	50,000	High	$702	Low	Low	Low	Medium Low	Low[1]	Oklahoma has moritorium for export of water out of state. May require an IBT.	
TRWD	Multiple	Trinity and Brazos	Oklahoma	50,000	High	$911	Low	Low	Low	Medium Low	Medium Low	Oklahoma has moritorium for export of water out of state. May require an IBT.	
Irving	Dallas	Trinity	Oklahoma	25,000	High	$810	Low	Low	Low	Medium Low	Medium Low	Oklahoma has moritorium for export of water out of state. May require an IBT.	

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
TRWD	Multiple	Trinity and Brazos	TRWD/DWU Integrated Pipeline (TRWD Share)	179,000	High	$569	Low	Low	Low	Low	Low		Does not add yield to TRWD system, but does convey water to Tarrant County, where it is needed.
TRWD	Navarro and Henderson	Trinity and Brazos	TRWD Wetlands	105,000	High	$205	Low	Low	Low	Low	Medium	TRWD has water right permit.	Richland-Chambers Pump Station and pilot wetland have been built.
DWU	Multiple	Trinity	Lake o' the Pines	89,600	High	$705	Low	Low	Low	Medium Low	Low[1]	Requires IBT and contract with NETMWD.	Significant change to historical water use. Highly renewable resource should minimize impacts.
NTMWD	Multiple	Multiple	Lake o' the Pines	87,900	High	$576	Low	Low	Low	Medium Low	Medium Low	Requires IBT and contract with NETMWD.	Significant change to historical water use. Highly renewable resource should minimize impacts.
TRWD	Multiple	Trinity and Brazos	Lake o' the Pines	87,900	High	$953	Low	Low	Low	Medium Low	Medium Low	Requires IBT and contract with NETMWD.	Significant change to historical water use. Highly renewable resource should minimize impacts.
DWU	Multiple	Trinity	Wright Patman - Texarkana	100,000	High	$823	Low	Low	Low	Medium Low	Medium Low	Requires agreement with Texarkana and IBT.	Significant change to historical water use. Highly renewable resource should minimize impacts.
NTMWD	Multiple	Multiple	Wright Patman - Texarkana	100,000	High	$812	Low	Low	Low	Medium Low	Medium Low	Requires agreement with Texarkana and IBT.	Significant change to historical water use. Highly renewable resource should minimize impacts.
TRWD	Multiple	Trinity and Brazos	Wright Patman - Texarkana	100,000	High	$1,167	Low	Low	Low	Medium Low	Medium Low	Requires agreement with Texarkana and IBT.	Significant change to historical water use. Highly renewable resource should minimize impacts.
DWU	Multiple	Trinity	Wright Patman - Raise Pool	112,100	High	$762	Medium	Low	Medium Low	Medium Low	Medium Low	Requires IBT, contract with USACE and new or amended water right permit.	Requires NEPA evaluation
NTMWD	Multiple	Multiple	Wright Patman - Raise Pool	180,000	High	$543	Medium	Low	Medium Low	Medium Low	Medium Low	Requires IBT, contract with USACE and new or amended water right permit.	Requires NEPA evaluation

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on:					Implementation Issues	Comments
							Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters		
TRWD	Multiple	Trinity and Brazos	Wright Patman - Raise Pool	180,000	High	$954	Medium	Low	Medium Low	Medium Low	Medium Low	Requires IBT, contract with USACE and new or amended water right permit.	Requires NEPA evaluation
Multiple	Multiple	Multiple	Wright Patman - System	390,000	High	$1,703	Medium	Low	Medium	Medium	Medium Low	Requires IBT, contract with USACE and new or amended water right permit.	Requires NEPA evaluation. Will increase water level fluctuations in Jim Chapman Lake.
DWU	Multiple	Trinity	Livingston	200,000	High	$982	Low	Low	Low	Medium Low	Low[1]	Requires contract with TRA.	Other competing users of this water
NTMWD	Multiple	Multiple	Livingston	200,000	High	$1,103	Low	Low	Low	Medium Low	Low[1]	Requires contract with TRA.	Other competing users of this water
TRWD	Multiple	Trinity and Brazos	Livingston	200,000	High	$1,120	Low	Low	Low	Medium Low	Low[1]	Requires contract with TRA.	Other competing users of this water
DWU	Multiple	Trinity	Lake Texoma not Yet Authorized - Blend with Elm Fork	20,000	High	$306	Low	Low	Medium Low	Low	Medium	Requires IBT, Congressional authorization, state water right and contract with USACE.	
Multiple	Multiple	Multiple	Lake Texoma not Yet Authorized - Blend with Other Sources	113,000	High	$445	Medium low	Low	Medium Low	Medium Low	Medium	Requires IBT, Congressional authorization, state water right and contract with USACE.	Impacts to water quality will vary with other sources used for blending.
Multiple	Multiple	Multiple	Lake Texoma not Yet Authorized - Desalinate	105,000	High	$1,558	Medium	Low	Medium	Medium Low	Medium	Requires IBT, Congressional authorization, state water right, contract with USACE and brine discharge permit (deep well injection).	Treated water. Impacts to water quality parameters will depend on disposal of brine
NTMWD	Multiple	Multiple	Lake Texoma Authorized - Blend	113,000	High	$303	Medium low	Low	Medium Low	Medium Low	Medium	Water right acquired. Requires contract with USACE.	Impacts to water quality will vary with other sources used for blending.
NTMWD	Multiple	Multiple	Lake Texoma Authorized - Desal	105,000	High	$994	Medium	Low	Medium	Medium Low	Medium	Requires contract with USACE and brine discharge permit.	Treated water. Impacts to water quality parameters will depend on disposal of brine

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
Multiple	Multiple	Multiple	Gulf of Mexico	200,000	Medium	$2,535	Medium	Low	Medium Low	Low	Low	Technology is still developing for this application at this scale. May require state water right permit and IBT.	Treated water. Possible localized impacts at intake and discharge of reject brine.
DWU	Multiple	Trinity	Dallas Southside Reuse	67,253	High	$413	Low	Low	Medium Low	Low	Medium	Requires wastewater discharge permit.	
DWU	Multiple	Trinity	Dallas Lewisville Reuse	67,253	High	$374	Low	Low	Medium Low	Low	Medium	Requires wastewater discharge permit.	
DWU	Multiple	Trinity	Dallas Direct Reuse	20,456	High	$397	Low	Low	Medium Low	Low	Low	Supply is limited to specific uses.	
DWU	Multiple	Trinity	Tawakoni Pipeline		High	$558	Low	Low	Low	Medium Low	Low[1]	DWU has contract.	Significant change to historical water use. Highly renewable resource should minimize impacts.
DWU and NTMWD	Multiple	Multiple	Main Stem Pump Station	41,029	High	$305	Low	Low	Low	Low	Low		
NTMWD	Multiple	Multiple	Lower Bois d'Arc Creek Reservoir	123,000	High	$433	Medium high	High	Medium	Medium	Low[1]	Requires new water rights permit and IBT.	Stream has been channelized such that significant hydrologic changes from natural conditions.
Multiple	Multiple	Multiple	Marvin Nichols	495,300	High	$3,359	High	High	Medium high	High	Medium	Requires new water rights permit and IBT. Known public opposition.	This strategy assumes participation of DWU, Irving, NTMWD, TRWD and UTRWD.
Multiple	Multiple	Multiple	Marvin Nichols	489,840	High	$1,982	High	High	Medium high	High	Medium	Requires new water rights permit and IBT. Known public opposition.	This strategy includes TRWD, NTMWD, and UTRWD
UTRWD	Multiple	Trinity	Ralph Hall and reuse	52,437	High	$472	Medium high	Medium	Medium	Medium	Medium	Requires new water rights permit, reuse permit and IBT.	Stream has been altered such that significant hydrologic changes from natural conditions.
DWU	Multiple	Neches	Neches River Run-of-River Diversion	112,100	High	$1,437	Medium high	Medium	Medium high	Medium	Medium	Requires new water rights permit and IBT.	
DWU	Multiple	Trinity	George Parkhouse North	112,000	High	$456	Medium high	Medium high	Medium	Medium	Low[1]	Requires new water rights permit and IBT.	90% of acreage is crop or pasture land. No priority bottomland hardwoods.
NTMWD and/or UTRWD	Multiple	Multiple	George Parkhouse North	118,960	High	$427	Medium high	Medium high	Medium	Medium	Low	Requires new water rights permit and IBT.	90% of acreage is crop or pasture land. No priority bottomland hardwoods.

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
NTMWD and/or UTRWD	Multiple	Multiple	George Parkhouse South	108,480	High	$558	Medium high	Medium High	Medium	Medium	Low	Requires new water rights permit and IBT.	78% of acreage is crop or pasture land. No priority bottomland hardwoods.
DWU	Multiple	Trinity	Columbia	35,800	High	$553	Medium high	Medium	Medium	Medium	Medium	Requires contract with ANRA and IBT.	ANRA has water rights permit.
TRWD	Multiple	Trinity and Brazos	Tehuacana	56,800	High	$1,118	Medium high	Medium high	Medium	Medium	Low	Requires new water rights permit.	Planned to operate as system with Richland Chambers Reservoir.
DWU	Multiple	Trinity	Roberts County Groundwater	200,000	High	$1,318	Medium low	Medium	Medium	Medium Low	Medium	Require groundwater permit and additional water rights.	Assumes 400,000 acres of water rights.
NTMWD	Multiple	Multiple	Roberts County Groundwater	200,000	High	$1,472	Medium low	Medium	Medium	Medium Low	Medium	Require groundwater permit and additional water rights.	Assumes 400,000 acres of water rights.
TRWD	Multiple	Trinity and Brazos	Roberts County Groundwater	200,000	High	$1,189	Medium low	Medium	Medium	Medium Low	Medium	Requires groundwater permit and additional water rights.	Assumes 400,000 acres of water rights.
DWU	Multiple	Trinity	Carrizo-Wilcox Groundwater	100,000	High	$1,222	Medium	Medium	Medium high	Medium	Low	Requires coordination with local groundwater districts.	Requires 100,000 ac-ft/yr of water rights. Competing uses for water.
NTMWD	Multiple	Multiple	Carrizo-Wilcox Groundwater	100,000	High	$1,416	Medium	Medium	Medium high	Medium	Low	Requires coordination with local groundwater districts.	Requires 100,000 ac-ft/yr of water rights. Competing uses for water.
TRWD	Multiple	Trinity and Brazos	Carrizo-Wilcox Groundwater	50,000	High	$1,253	Medium low	Medium	Medium	Medium	Low	Requires coordination with local groundwater districts.	Requires 50,000 ac-ft/yr of water rights. Competing uses for water.
NTMWD/ Fannin County	Fannin	Red	Fannin County Water Supply System	6,643	High	$1,259	Low	Low	Low	Low	Low[2]		Treated water system using water from Lower Bois d'Arc Creek Reservoir. To be developed by NTMWD and Fannin County entities. No new supply for NTMWD.
Waxahachie, Rockett SUD, Ennis, TRA, Midlothian	Ellis	Trinity	Ellis County Water Supply Project	53,222	High	$782	Low	Low	Low	Low	Low[2]		Raw water from TRWD via TRA. Treatment plants probably build by Ennis, Middlothian, and Waxahachie/Rockett SUD. Transmission lines built by TRA or supliers.

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on:					Implementation Issues	Comments
							Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters		
Multiple	Multiple	Multiple	New water treatment plant	varies	High	varies	Low	Low	Low	Low	Low[2]		Assumes supplies no new raw water supply.
Multiple	Multiple	Multiple	Water treatment plant expansion	varies	High	varies	Low	Low	Low	Low	Low[2]		Assumes supplies no new raw water supply.
Multiple	Multiple	Multiple	Overdraft Trinity aquifer in 2010 (new wells)	varies	Medium	varies	Low	Low	Medium low	Medium	Medium Low		Temporary measure until other strategies are implemented.
Multiple	Multiple	Multiple	Overdraft Trinity aquifer in 2010 (existing wells)	varies	Medium	varies	Low	Low	Medium low	Medium	Medium Low		Temporary measure until other strategies are implemented.
Multiple	Multiple	Multiple	Overdraft Woodbine aquifer in 2010 (new wells)	varies	Medium	varies	Low	Medium low	Medium low	Medium	Medium Low		Temporary measure until other strategies are implemented.
Multiple	Multiple	Multiple	Overdraft Woodbine aquifer in 2010 (existing wells)	varies	Medium	varies	Low	Medium low	Medium low	Medium	Medium Low		Temporary measure until other strategies are implemented.
Multiple	Multiple	Multiple	Expanded use of Trinity Aquifer	varies	High	varies	Low	Medium low	Low	Medium low	Low		
Multiple	Multiple	Multiple	Expanded use of Woodbine Aquifer	varies	High	varies	Low	Medium low	Low	Medium low	Low		
Multiple	Multiple	Multiple	Expanded use of Carrizo-Wilcox Aquifer	varies	High	varies	Low	Medium low	Low	Medium low	Low		
Multiple	Multiple	Multiple	Supplemental wells	0	High	N/A	Low	Low	Low	Medium low	Low		Assumes no new supplies.
Multiple	Multiple	Multiple	Basic Conservation Package	varies	Medium	varies	Low	Low	Low	Low	Low[2]	Hard to enforce	Assumes that people will change their water use habits. Reduces return flows.
Multiple	Multiple	Multiple	Expanded Conservation Package	varies	Medium	varies	Low	Low	Low	Low	Low[2]	Hard to enforce	Assumes that people will change their water use habits. Reduces return flows.
Corsicana	Navarro	Trinity	Richland-Chambers Pump Station & WTP	4,480	High	$569	Low	Low	Low	Low	Low[2]		Corsicana already has water right.
Weatherford	Parker	Trinity	Expand Lake Benbrook PS	0	High	NA	Low	Low	Low	Low	Low[2]		
Walnut Creek SUD	Parker/Wise	Trinity	Parallel pipeline to Lake Bridgeport	6,700	High	$206	Low	Low	Low	Low	Low[2]		

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
Walnut Creek SUD	Wise	Trinity	Second pipeline to Boyd/Rhome	3,900	High	$505	Low	Low	Low	Low	Low²		Treated water delivered
Multiple	Multiple	Multiple	Additional supply from water provider	varies	High	varies	Low	Low	Low	Low	Low²		See wholesale provider strategies for costs and impacts for water.
Fort Worth	Tarrant	Trinity	Parallel pipeline to Eagle Mountain	0	High	NA	Low	Low	Low	Low	Low²		See TRWD strategies for raw water supplies.
Fort Worth	Tarrant	Trinity	Pipeline to new Southwest WTP	0	High	NA	Low	Low	Low	Low	Low²		See TRWD strategies for raw water supplies.
TRA/ TRWD	Tarrant	Trinity	Tarrant County Water Supply Project Plant	20,949	High	$622	Low	Low	Low	Low	Low²		Delivers treated water. Cost includes $0.68/ kgal for raw water purchase.
TRA/ Dallas County Irrigation	Dallas	Trinity	Las Colinas Reuse	7,000	High	$284	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Assumed cost of water for reuse is $0.25 per 1,000 gallons.
TRA/ Dallas Co. SEP	Dallas	Trinity	Dallas County Reuse	6,760	High	$389	Low	Low	Low	Low	Medium	TRA is currently seeking reuse permits.	Reuse for steam electric power at Mountain Creek Lake.
Ennis	Ellis	Trinity	Flood Storage Reallocation at Lake Bardwell	1,760	High		Medium low	Low	Medium Low	Low	Low²	Requires new water right and contract with the Corps	Costs were updated from 1988 Study.
TRA	Ellis	Trinity	Ellis County Steam Electric Reuse	2,200	High	$505	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Distance is assumed. Assumed cost of water for reuse is $0.25 per 1,000 gallons.
TRA	Freestone	Trinity	Freestone County Steam Electric Reuse	6,760	High	$312	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Distance is assumed. Assumed cost of water for reuse is $0.25 per 1,000 gallons.
TRA	Kaufman	Trinity	Kaufman County Steam Electric Reuse	1,000	High	$901	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Distance is assumed. Assumed cost of water for reuse is $0.25 per 1,000 gallons.
TRA	Tarrant/ Denton	Trinity	Tarrant and Denton County Irrigation	7,500	High	$266	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Distance is assumed. Assumed cost of water for reuse is $0.25 per 1,000 gallons.
TRA	Tarrant	Trinity	Tarrant County Municipal	7,500	High	Combined with project above	Low	Low	Low	Low	Low	TRA is currently seeking reuse permits.	Assumed cost of reuse water is $0.25 per 1,000 gallons.
TRA	Multiple	Trinity	Joe Pool Lake Reuse from New WWTP	4,368	High	n/a	Low	Low	Low	Low	Medium	TRA is currently seeking reuse permits.	Assumed cost of reuse water is $0.25 per 1,000 gallons. No Capital Costs

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
NTMWD/ GTUA	Multiple	Multiple	Additional Lake Texoma (Renew Interim NTMWD Raw Water Supply)	21,900	High	$63	Low	Low	Low	Low	Medium		Renewal of GTUA signed contract with NTMWD to provide up to 25,000 ac-ft/yr of raw water.
NTMWD/ GTUA	Collin/ Grayson	Trinity/ Red	Collin-Grayson Municipal Alliance Pipeline Project		High		Low	Low	Low	Low	Low[2]	Expansions to existing treated water transmission system from McKinney to the participants.	
GTUA	Grayson	Multiple	Grayson County Water Supply Project		High	$839	Low	Low	Low	Low	Medium	Requires expanded treatment and transmission system. Would require the new water right in Lake Texoma (discussed above).	
Athens MWA	Henderson	Multiple	Indirect Reuse	2,677	High	$923	Low	Low	Low	Low	Medium	Reuse permit has been obtained.	
Athens MWA	Henderson	Multiple	Indirect Reuse from Fish Hatchery	2,872	High	n/a	Low	Low	Low	Low	Medium	Reuse permit has been obtained.	No infrastructure required. No capital costs.
Athens MWA	Henderson	Multiple	Forest Grove (all to Lake)	4,500	High	$209	Medium low	Low	Low	Positive	Low	Requires change in permitted use and agreement with TXU	Will improve property values around lake.
Athens MWA	Henderson	Multiple	Forest Grove (split to Lake and City)	4,500	High	$191	Medium low	Low	Low	Positive	Low	Requires change in permitted use and agreement with TXU	Will improve property values around lake.
Athens MWA	Henderson	Multiple	Connect to Lake Palestine	4,000	High	$693	Low	Low	Low	Low	Low[2]	Requires contract with UNRMWA	
Athens MWA	Henderson	Multiple	Purchase water from DWU	4,000	High	$1,014	Low	Low	Low	Medium low	Low[2]	Requires contract with DWU	
Gainesville/ Cooke County Entities	Cooke	Multiple	Cooke County Water Supply Project		High	$1,034	Low	Low	Low	Low	Low[2]	Requires water treatment plant expansions. Requires new water right permit and IBT.	Total annual available supply from Moss Lake would become 5,371 acre-feet per year. This supply would be available to the City and its customers.
Fairfield	Freestone	Trinity	Connection to TRWD		High		Low	Low	Low	Low	Low[2]		

Table P.1

Summary of Evaluation of Water Management Strategies

Entity	County Used	Basin Used	Strategy	Quantity (Ac-Ft/Yr)	Reliability of Supply	Annual Cost with Debt Service ($/Ac-Ft)	Impacts of Strategy on: Environmental Factors	Agricultural Resources/ Rural Areas	Other Natural Resources	PossibleThird Party	Key Water Quality Parameters	Implementation Issues	Comments
Jack County-Other	Jack	Trinity	Jack County-Other Transmission System	300	High		Low	Low	Low	Low	Low[2]		
Blue Ridge	Collin	Trinity	Blue Ridge Connection to NTMWD	3,200	High	$497	Low	Low	Low	Low	Low[2]		

[1] Assumes that source water is transferred directly to a water treatment plant and there is no impact on water quality.

[2] Strategy does not involve discharge of water from one source into another source; therefore, there is no impact on water quality.

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors										Comments
				Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	
Name(s)	Name	Name	Name	#	#	High, medium, low	High, medium, low	# in county	High, medium, low	High, medium, low	High, medium, low	High, medium, low	High, medium, low	
DWU	Multiple	Trinity	Palestine (via TRWD/DWU Integrated Pipeline)	200	NA	Medium	Low	7	Low	Medium low	Low	Low	Low	
Multiple	Multiple	Multiple	Toledo Bend (400,000)	1,870	NA	Medium	Medium low	12	Low	Medium low	Low	Low	Medium low	
Multiple	Multiple	Multiple	Toledo Bend (700,000)	1,870	NA	Medium	Medium low	13	Low	Medium	Low	Low	Medium low	
Multiple	Multiple	Multiple	Toledo Bend (500,000)	2,099	NA	Medium	Medium low	14	Low	Medium low	Low	Low	Medium low	
NTMWD	Multiple	Multiple	Oklahoma	189	NA	Medium low	Low	Unknown	Low	Low	Low	Low	Low	
DWU	Multiple	Trinity	Oklahoma	413	NA	Medium low	Low	Unknown	Low	Low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	Oklahoma	551	NA	Medium low	Low	Unknown	Low	Low	Low	Low	Low	
Irving	Dallas	Trinity	Oklahoma	190	NA	Medium low	Low	Unknown	Low	Low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	TRWD/DWU Integrated Pipeline (TRWD Share)	331	NA	Medium low	Low	9	Low	Medium low	Medium low	Low	Low	Possible lower return flows.
DWU	Multiple	Trinity	Lake o' the Pines	422	NA	Medium	Low	11	Low	Low	Low	Low	Low	
NTMWD	Multiple	Multiple	Lake o' the Pines	319	NA	Medium	Low	11	Low	Low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	Lake o' the Pines	599	NA	Medium	Low	11	Low	Low	Low	Low	Low	
DWU	Multiple	Trinity	Wright Patman - Texarkana	720	NA	Medium low	Low	13	Low	Low	Low	Low	Low	
NTMWD	Multiple	Multiple	Wright Patman - Texarkana	612	NA	Medium low	Low	13	Low	Low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	Wright Patman - Texarkana	950	NA	Medium low	Low	13	Low	Low	Low	Low	Low	

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors: Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	Comments
DWU	Multiple	Trinity	Wright Patman - Raise Pool	4,260	unknown	Medium low	Medium high	13	Medium	Low	Low	Low	Medium	Requires NEPA and 404 permit
NTMWD	Multiple	Multiple	Wright Patman - Raise Pool	3,430	unknown	Medium low	Medium high	13	Medium	Low	Low	Low	Medium	Requires NEPA and 404 permit
TRWD	Multiple	Trinity and Brazos	Wright Patman - Raise Pool	3,768	unknown	Medium low	Medium high	13	Medium	Low	Low	Low	Medium	Requires NEPA and 404 permit
Multiple	Multiple	Multiple	Wright Patman - System	4,479	unknown	Medium	Medium high	13	Medium	Low	Low	Medium	Medium	Will increase lake fluctuation at Jim Chapman. Requires NEPA and 404 permit
DWU	Multiple	Trinity	Sam Rayburn/Steinhagen	1,997	NA	Medium low	Low	13	Low	Medium low	Low	Low	Low	
NTMWD	Multiple	Multiple	Sam Rayburn/Steinhagen	2,104	NA	Medium low	Low	13	Low	Medium low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	Sam Rayburn/Steinhagen	2,287	NA	Medium low	Low	13	Low	Medium low	Low	Low	Low	
DWU	Multiple	Trinity	Livingston	1,749	NA	Medium low	Low	10	Low	Medium low	Low	Low	Low	
NTMWD	Multiple	Multiple	Livingston	1,943	NA	Medium low	Low	10	Low	Medium low	Low	Low	Low	
TRWD	Multiple	Trinity and Brazos	Livingston	964	NA	Medium low	Low	10	Low	Medium low	Low	Low	Low	
DWU	Multiple	Trinity	Lake Texoma not Yet Authorized - Blend with Elm Fork	172	NA	Low	Low	13	Low	Low	Medium	Low	Low	Possible water quality concerns for receiving waters. Requires NEPA.
Multiple	Multiple	Multiple	Lake Texoma not Yet Authorized - Blend with Other Sources	306	NA	Medium low	Low	13	Low	Low	Low to Medium*	Low	Medium low	* Impacts will vary depending on how water is blended. Requires NEPA.
Multiple	Multiple	Multiple	Lake Texoma not Yet Authorized - Desalinate	306	NA	Medium low	Low	13	Low	Low	Medium	Medium high	Medium	Impacts to environmental water quality will vary depending on disposal of reject. Requires NEPA.

Table P.2

Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors: Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	Comments
NTMWD	Multiple	Multiple	Lake Texoma Authorized - Blend	252	NA	Medium low	Low	13	Low	Low	Low to Medium*	Low	Medium low	Requires new water to blend. *Impacts will vary depending on how water is blended.
NTMWD	Multiple	Multiple	Lake Texoma Authorized - Desal	252	NA	Medium low	Low	13	Low	Low	Medium	Medium high	Medium	Impacts to environmental water quality will vary depending on disposal of reject.
Multiple	Multiple	Multiple	Gulf of Mexico	2,813	NA	Low	Medium low	NA	Low	Medium	Medium	Medium	Medium	Potential impacts to receiving waters of reject brine. Potential impacts to aquatic life at intake.
DWU	Multiple	Trinity	Dallas Southside Reuse	781	NA	Medium low	Positive	6	Low	Medium low	Medium low	Low	Low	Possible lower return flows. Option for 1,200 acres of constructed wetlands.
DWU	Multiple	Trinity	Dallas Lewisville Reuse	192	NA	Medium low	Low	6	Low	Medium low	Medium low	Low	Low	Possible lower return flows.
DWU	Multiple	Trinity	Dallas Direct Reuse	116	NA	Low	Low	Not applicable	Low	Medium low	Low	Low	Low	Possible lower return flows.
DWU	Multiple	Trinity	Tawakoni Pipeline		NA	Medium	Low		Low	Medium low	Low	Low	Low	
DWU and NTMWD	Multiple	Multiple	Main Stem Pump Station			Medium low	Low		Low	Low	Low	Low	Low	
NTMWD	Multiple	Multiple	Lower Bois d'Arc Creek Reservoir	16,526	5,874	Medium	Medium high	15	Medium high	Low	Medium	Medium	Medium high	Proposed reservoir is upstream of the Caddo National Grasslands. Will require a NEPA and 404 permit.
Multiple	Multiple	Multiple	Marvin Nichols	68,854	14,422	Medium high	High	19	High	Low	Medium	Medium	High	Priority 1 bottomland hardwoods. Will require a NEPA and 404 permit. 33,000 acres of forested land will be impacted.

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors										Comments
				Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	
Multiple	Multiple	Multiple	Marvin Nichols	68,854	14,422	Medium high	High	20	High	Low	Medium	Medium	High	Priority 1 bottomland hardwoods. Will require a NEPA and 404 permit. 33,000 acres of forested land will be impacted.
UTRWD	Multiple	Trinity	Ralph Hall	7,714	0	Medium	Medium high	16	Medium	Low	Medium	Medium low	Medium high	Will require a NEPA and 404 permit.
DWU	Multiple	Neches	Fastrill Lake	25,197	N/A	Medium-High	High	21	High	Low	Medium	Medium	High	Priority 1 bottomland hardwoods. Will require a NEPA and 404 permit.
DWU	Multiple	Neches	Neches River Run-of-the-River Diversion	12,328	N/A	Medium-High	Medium	21	Medium high	Low	Medium	Medium	Medium high	
DWU	Multiple	Trinity	George Parkhouse North	14,644	1590[3]	Medium	Medium high	16	Medium high	Low	Medium	Medium low	Medium high	No designated priority bottomland hardwoods located within or adjacent to site. 90% of land impacted is cropland or pasture. Will require a NEPA and 404 permit.
NTMWD and/or UTRWD	Multiple	Multiple	George Parkhouse North	14,636	1590[3]	Medium	Medium high	16	Medium high	Low	Medium	Medium low	Medium high	
NTMWD and/or UTRWD	Multiple	Multiple	George Parkhouse South	33,500	NA	Medium	Medium high	13	Medium high	Low	Medium	Medium low	Medium high	No designated priority bottomland hardwoods located within or adjacent to site. 78% of land is pasture or cropland.
DWU	Multiple	Trinity	Columbia	11,551	5,746	Medium	Medium high	15	Medium high	Low	Medium	Medium low	Medium high	Category 2 habitat for bottomland hardwoods. Will require a NEPA and 404 permit.
TRWD	Multiple	Trinity and Brazos	Tehuacana	14,938	7,000	Medium	Medium high	13	Medium high	Medium low	Medium	Medium low	Medium high	No priority bottomland hardwoods Will require a 404 permit, and possible NEPA.
DWU	Multiple	Trinity	Roberts County Groundwater	1,319	NA	Medium low	Low	not applicable	Low	Low	Low	Medium high	Medium low	Potential impacts to stream flows and Arkansas river shiner. Limited resource.

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors										Comments
				Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	
NTMWD	Multiple	Multiple	Roberts County Groundwater	1,566	NA	Medium low	Low	not applicable	Low	Low	Low	Medium high	Medium low	Potential impacts to stream flows and Arkansas river shiner. Limited resource.
TRWD	Multiple	Trinity and Brazos	Roberts County Groundwater	1,190	NA	Medium low	Low	not applicable	Low	Low	Low	Medium high	Medium low	Potential impacts to stream flows and Arkansas river shiner. Limited resource.
DWU	Multiple	Trinity	Carrizo-Wilcox Groundwater	703	NA	Medium low	Low	not applicable	Low	Low	Low	Medium high	Medium	Potential impacts to stream flows.
NTMWD	Multiple	Multiple	Carrizo-Wilcox Groundwater	803	NA	Medium low	Low	not applicable	Low	Low	Low	Medium high	Medium	Potential impacts to stream flows.
TRWD	Multiple	Trinity and Brazos	Carrizo-Wilcox Groundwater	937	NA	Medium low	Low	not applicable	Low	Low	Low	Medium	Medium low	Potential impacts to stream flows.
NTMWD/ Fannin County	Fannin	Red	Fannin County Water Supply System	174	NA	Low	Low	10	Low	Low	Low	Low	Low	
Waxahachie, Rockett SUD, Ennis, TRA, Midlothian	Ellis	Trinity	Ellis County Water Supply Project	170	NA	Low	Low	6	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	New water treatment plant	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Water treatment plant expansion	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Overdraft Trinity aquifer in 2010 (new wells)	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Overdraft Trinity aquifer in 2010 (existing wells)	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Overdraft Woodbine aquifer in 2010 (new wells)	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors										Comments
				Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	
Multiple	Multiple	Multiple	Overdraft Woodbine aquifer in 2010 (existing wells)	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Expanded use of Trinity Aquifer	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Expanded use of Woodbine Aquifer	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Expanded use of Carrizo-Wilcox Aquifer	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Supplemental wells	Varies	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Basic Conservation Package	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	Reduces demand on resources. Also reduces return flows.
Multiple	Multiple	Multiple	Expanded Conservation Package	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	Reduces demand on resources. Also reduces return flows.
Corsicana	Navarro	Trinity	Richland-Chambers Pump Station	0	NA	Low	Low	7	Low	Low	Low	Low	Low	
Weatherford	Parker	Trinity	Increase pumping capacity of TRWD pipeline	0	NA	Low	Low	5	Low	Low	Low	Low	Low	
Walnut Creek SUD	Parker/Wise	Trinity	Parallel pipeline to Lake Bridgeport	24	NA	Low	Low	9	Low	Low	Low	Low	Low	
Walnut Creek SUD	Wise	Trinity	Second pipeline to Boyd/Rhome	39	NA	Low	Low	4	Low	Low	Low	Low	Low	
Multiple	Multiple	Multiple	Additional supply from water provider	NA	NA	Low	Low	varies	Low	Low	Low	Low	Low	
Fort Worth	Tarrant	Trinity	Parallel pipeline to Eagle Mountain	0	NA	Low	Low	4	Low	Low	Low	Low	Low	
Fort Worth	Tarrant	Trinity	Pipeline to new Southwest WTP	TBD	NA	Low	Low	4	Low	Low	Low	Low	Low	
TRA	Tarrant	Trinity	Tarrant County Water Supply Project Plant	NA	NA	Low	Low	4	Low	Low	Low	Low	Low	

Table P.2
Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors										Comments
				Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	
TRA/ Dallas County Irrigation	Dallas	Trinity	Las Colinas Reuse	0	NA	Low	Low	5	Low	Medium low	Low	Low	Low	
TRA/ Dallas Co. SEP	Dallas	Trinity	Dallas County Reuse	25	NA	Low	Low	5	Low	Medium low	Medium low	Low	Low	
Ennis	Ellis	Trinity	Flood Storage Reallocation at Lake Bardwell	TBD	NA	Medium low	Medium	6	Medium low	Medium low	Low	Low	Medium low	May require NEPA and 404 permit.
TRA	Ellis	Trinity	Ellis County Steam Electric Reuse	24	NA	Low	Low	6	Low	Medium low	Low	Low	Low	
TRA	Freestone	Trinity	Freestone County Steam Electric Reuse	36	NA	Low	Low	7	Low	Medium low	Low	Low	Low	
TRA	Kaufman	Trinity	Kaufman County Steam Electric Reuse	36	NA	Low	Low	6	Low	Medium low	Low	Low	Low	
TRA	Tarrant/ Denton	Trinity	Tarrant and Denton County Irrigation	16	NA	Low	Low	10	Low	Medium low	Low	Low	Low	
TRA	Tarrant	Trinity	Tarrant County Municipal	0	NA	Low	Low	4	Low	Medium low	Low	Low	Low	
TRA	Multiple	Trinity	Joe Pool Lake Reuse from New WWTP	0	NA	Low	Low	5	Low	Medium low	Low	Low	Low	
TRA	Dallas/ Ellis	Trinity	Dallas and Ellis County Irrigation	12	NA	Low	Low	11	Low	Low	Low	Low	Low	
GTUA	Multiple	Multiple	Change Permitted Lake Texoma Use to Municipal or Industrial	0	NA	Low	Low	not applicable	Low	Low	Low	Low	Low	
NTMWD/ GTUA	Multiple	Multiple	Additional Lake Texoma (Renew Interim NTMWD Raw Water Supply)	0	NA	Low	Low	13	Low	Low	Medium low	Low	Low	
NTMWD/ GTUA	Collin/ Grayson	Trinity/ Red	Collin-Grayson Municipal Alliance Pipeline Project	TBD	NA	Low	Low	18	Low	Low	Low	Low	Low	
GTUA	Grayson	Multiple	Grayson County Water Supply Project	230	NA	Low	Low	12	Low	Low	Low to Medium*	Low to Medium*	Low	* Impacts will vary depending on how water is blended or treated.

Table P.2

Summary of Evaluation of Environmental Factors

Entity	County	Basin	Strategy	Environmental Factors: Acres Impacted	Wetland Acres	Environmental Water Needs	Habitat	Threatened/ Endangered Species	Cultural Resources	Bays & Estuaries	Environmental Water Quality	Other	Overall Environmental Impacts	Comments
Athens MWA	Henderson	Multiple	Indirect Reuse	10	NA	Low	Low	7	Low	Medium low	Medium low	Low	Low	
Athens MWA	Henderson	Multiple	Forest Grove (all to Lake)	30	NA	Medium low	Medium low	12	Medium low	Medium low	Low	Low	Medium low	
Athens MWA	Henderson	Multiple	Forest Grove (split to Lake and City)	33	NA	Medium low	Medium low	12	Medium low	Medium low	Low	Low	Medium low	
Athens MWA	Henderson	Multiple	Connect to Lake Palestine	55	NA	Low	Low	7	Low	Low	Low	Low	Low	
Athens MWA	Henderson	Multiple	Purchase water from DWU	1	NA	Low	Low	7	Low	Low	Low	Low	Low	
Gainesville/ Cooke County Entities	Cooke	Multiple	Cooke County Water Supply Project	81	NA	Low	Low	7	Low	Low	Low	Low	Low	
Fairfield	Freestone	Trinity	Connection to TRWD	12	NA	Low	Low	7	Low	Low	Low	Low	Low	
Wortham	Freestone	Trinity	Purchase treated water from Winkler WSC	36	NA	Low	Low	7	Low	Low	Low	Low	Low	
Bryson	Jack	Brazos	Connect Bryson to Jacksboro	29	NA	Low	Low	5	Low	Low	Low	Low	Low	
Jack County-Other	Jack	Trinity	Jack County-Other Transmission System	24	NA	Low	Low	5	Low	Low	Low	Low	Low	
Blue Ridge	Collin	Trinity	Blue Ridge Connection to NTMWD	24	NA	Low	Low	6	Low	Low	Low	Low	Low	

Notes:

1. The number of endangered and threatened species is the total number of species listed for the counties where the project is located. It does not represent the number of species that may be located within the project site.
   For potential impacts to threatened and endangered species for strategies involving existing reservoirs, the number is limited to those that are riparian, wetland or estuary dependent.
2. Acreage of potential wetlands for reservoir sites is based on acreage of hydric soils. Lake Columbia is the only new reservoir site that has had an on-ground wetlands delineation survey.
3. Data for reservoir site was obtained from the North East Texas Regional Water Plan, Appendix B, Reservoir Site Assessment Study, January 2001.
4. NA - Not available. Impacted wetland acreage for transmission projects are expected to be minimal. Pipeline will be routed minimize potential impacts.
5. Impacts to environmental water needs were assessed assuming that there would be minimal new water imports. It is highly unlikely that will occur. Imported water to the basin of concern will increase return flows in the streams.

TBD = to be determined