



Lower Colorado Regional Water Planning Group Meeting
September 9, 2009

Agenda Item #8

Presentation and Discussion of water management strategy options for new or changed shortage (“need”) conditions for WUGs within Region K

WMS Discussion

- Conservation Strategy Methodology (from 2006 Plan)
 - Target per capita demand of 140 gpcd for municipal users
 - A 1% decrease in per capita demand per year until reaching the 140 gpcd target
 - Applied before all other strategies

- Applied to WUGs Meeting Two Criteria:
 - Expecting a shortage in any planning decade
 - Capable of conservation savings (Per capita water usage is greater than 140 gpcd in year 2000)

- Conservation amounts, in general, increased from 2006 Plan due to increased demands

WMS Discussion

- Approval Request
 - AECOM requests approval by the planning group on the currently used methodology for calculating conservation savings (1% reduction per year) or asks that the planning group suggest and approve an alternative reduction percentage.

WMS Discussion

- Discussion of new and changed strategies

- Please see handout

New potential strategy not in 2006 Plan

Strategy amount different from 2006 Plan

Strategy from 2006 Plan not recommended for 2011 Plan

WMS Discussion – Bastrop County

Bastrop Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(139)	(2,392)	(5,722)	(12,731)	(18,083)	(25,288)
<i>(No. of WUGs)</i>	<i>2</i>	<i>5</i>	<i>6</i>	<i>6</i>	<i>7</i>	<i>9</i>
Irrigation	(119)	(50)	(40)	(31)	(24)	(17)
<i>WUGs</i>	<i>2</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Livestock	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Manufacturing	(8)	(17)	(28)	(38)	(46)	(60)
<i>WUGs</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>
Mining	(4,293)	(4,297)	(4,298)	0	0	0
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	0	(1,280)	(2,780)	(2,780)
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>
TOTAL	(4,559)	(6,756)	(10,088)	(14,080)	(20,933)	(28,145)
<i>WUGs</i>	<i>6</i>	<i>9</i>	<i>10</i>	<i>10</i>	<i>11</i>	<i>13</i>

WMS Discussion – Bastrop County New Strategies

- Aqua WSC
 - Additional Municipal Conservation
- County-Other
 - New Carrizo-Wilcox Well Field (Guadalupe Basin)
 - Additional Municipal Conservation
- Elgin
 - Temporary overdraft of Carrizo-Wilcox OR
 - Purchase water from LCRA
- Polonia WSC
 - Expand current Carrizo-Wilcox supply
- Smithville
 - Temporary overdraft of Carrizo-Wilcox OR
 - New well fields in Other Aquifer, Sparta Aquifer, and Queen City Aquifer

WMS Discussion – Blanco County

Blanco Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(137)	(173)	(187)	(204)	(273)	(362)
<i>(No. of WUGs)</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>2</i>
Irrigation	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Livestock	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Manufacturing	(1)	(1)	(1)	(1)	(1)	(1)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Mining	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL	(138)	(174)	(188)	(205)	(274)	(363)
<i>WUGs</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>3</i>	<i>3</i>	<i>3</i>

- No new or changed strategies

WMS Discussion – Burnet County

Burnet Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(521)	(1,292)	(2,913)	(4,957)	(6,425)	(8,041)
<i>(No. of) WUGs</i>	<i>4</i>	<i>6</i>	<i>7</i>	<i>7</i>	<i>9</i>	<i>9</i>
Irrigation	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Livestock	(23)	(23)	(23)	(23)	(23)	(23)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Manufacturing	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Mining	(7)	(10)	(12)	(22)	(24)	(25)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL	(551)	(1,325)	(2,948)	(5,002)	(6,472)	(8,089)
<i>WUGs</i>	<i>6</i>	<i>8</i>	<i>9</i>	<i>9</i>	<i>11</i>	<i>11</i>

WMS Discussion – Burnet County New Strategies

- Bertram
 - Expand current Ellenburger-San Saba Aquifer supply (Colorado Basin instead of Brazos Basin)
- County-Other
 - Expand current Ellenburger-San Saba Aquifer supply
- Granite Shoals
 - Amend contract with LCRA
- Marble Falls
 - Amend contract with LCRA
- Mining
 - Expand current Ellenburger-San Saba Aquifer supply

WMS Discussion – Colorado County

Colorado Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft) <i>(No. of WUGs)</i>	(105) <i>1</i>	(109) <i>1</i>	(106) <i>1</i>	(97) <i>1</i>	(95) <i>2</i>	(112) <i>2</i>
Irrigation <i>WUGs</i>	(49,300) <i>2</i>	(42,090) <i>2</i>	(35,089) <i>2</i>	(28,312) <i>2</i>	(21,723) <i>2</i>	(15,416) <i>2</i>
Livestock <i>WUGs</i>	(25) <i>2</i>	(25) <i>2</i>	(25) <i>2</i>	(25) <i>2</i>	(25) <i>2</i>	(25) <i>2</i>
Manufacturing <i>WUGs</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Mining <i>WUGs</i>	(8,569) <i>3</i>	(8,079) <i>3</i>	(7,246) <i>3</i>	(6,111) <i>3</i>	(4,692) <i>3</i>	(4,867) <i>3</i>
Steam Electric <i>WUGs</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
TOTAL <i>WUGs</i>	(57,999) 8	(50,303) 8	(42,466) 8	(34,545) 8	(26,535) 9	(20,420) 9

WMS Discussion – Colorado County New Strategies

- Eagle Lake
 - Transfer water from Eagle Lake Brazos-Colorado Basin

WMS Discussion – Fayette County

Fayette Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(118)	(420)	(683)	(1,019)	(1,419)	(1,961)
<i>(No. of) WUGs</i>	1	4	4	5	5	5
Irrigation	(20)	(18)	(16)	(14)	(12)	(10)
<i>WUGs</i>	1	1	1	1	1	1
Livestock	(22)	(22)	(22)	(22)	(22)	(22)
<i>WUGs</i>	1	1	1	1	1	1
Manufacturing	(45)	(70)	(94)	(117)	(137)	(162)
<i>WUGs</i>	1	1	1	1	1	1
Mining	0	(4)	(22)	(28)	(29)	(29)
<i>WUGs</i>	0	1	1	1	1	1
Steam Electric	0	0	0	(20,975)	(20,975)	(26,885)
<i>WUGs</i>	0	0	0	1	1	1
TOTAL	(205)	(534)	(837)	(22,175)	(22,594)	(29,069)
<i>WUGs</i>	4	8	8	10	10	10

WMS Discussion – Fayette County New Strategies

- Steam-Electric
 - Purchase water from LCRA
(strategy was COA reuse in 2006 Plan)

WMS Discussion – Gillespie County

- No shortages

WMS Discussion – Hays County

Hays Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(2,515)	(5,554)	(7,907)	(10,318)	(13,464)	(15,958)
<i>(No. of) WUGs</i>	<i>5</i>	<i>5</i>	<i>5</i>	<i>6</i>	<i>6</i>	<i>6</i>
Irrigation	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Livestock	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Manufacturing	(93)	(211)	(330)	(450)	(558)	(657)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Mining	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL	(2,608)	(5,765)	(8,237)	(10,768)	(14,022)	(16,615)
<i>WUGs</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>7</i>	<i>7</i>	<i>7</i>

WMS Discussion – Hays County New Strategies

- Buda
 - Expand Edwards-BFZ Aquifer supply through brackish groundwater desalination
- Cimarron Park Water Company
 - Allocate water from County-Other
 - Expand Edwards-BFZ Aquifer supply through brackish groundwater desalination
- County-Other
 - Expand Edwards-BFZ Aquifer supply through brackish groundwater desalination
 - Allocate water to Cimarron Park, Mountain City, Mfg.
- Mountain City
 - Conservation
 - Allocate water from County-Other
- Manufacturing
 - Allocate water from County-Other
 - New well field in Trinity Aquifer (correction to handout needed – no longer an overdraft)

WMS Discussion – Llano County

Llano Shortage

	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(1,400)	(1,681)	(1,779)	(2,010)	(2,266)	(2,562)
<i>(No. of WUGs)</i>	<i>3</i>	<i>3</i>	<i>4</i>	<i>4</i>	<i>4</i>	<i>4</i>
Irrigation	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Livestock	(62)	(62)	(62)	(62)	(62)	(62)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Manufacturing	(3)	(3)	(3)	(3)	(3)	(3)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Mining	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL	(1,465)	(1,746)	(1,844)	(2,075)	(2,331)	(2,627)
<i>WUGs</i>	<i>5</i>	<i>5</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>6</i>

WMS Discussion – Llano County New Strategies

- County-Other
 - Allocate water to City of Llano
- Kingsland WSC
 - Amend contract with LCRA
- Llano
 - Allocate water from County-Other

WMS Discussion – Matagorda County New Strategies

- County-Other
 - Water allocated to Irrigation
- Irrigation
 - Water allocated from County-Other
 - Water allocated from Manufacturing
- Manufacturing
 - Water allocated to Irrigation
- Steam-Electric
 - Purchase water from LCRA/Highland Lakes

WMS Discussion – Mills County

Mills Shortage

	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(501)	(553)	(569)	(563)	(589)	(607)
<i>(No. of WUGs)</i>	<i>2</i>	<i>2</i>	<i>3</i>	<i>3</i>	<i>5</i>	<i>5</i>
Irrigation	(339)	(275)	(241)	(180)	(193)	(186)
<i>WUGs</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>1</i>	<i>1</i>
Livestock	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Manufacturing	(1)	(1)	(1)	(1)	(1)	(1)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Mining	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
TOTAL	(841)	(829)	(811)	(744)	(783)	(794)
<i>WUGs</i>	<i>5</i>	<i>5</i>	<i>6</i>	<i>6</i>	<i>7</i>	<i>7</i>

WMS Discussion – Mills County New Strategies

- County-Other
 - Expand current Trinity supply (Brazos Basin)
 - Expand current Trinity supply (Colorado Basin)
 - Allocate water to Irrigation
- Goldthwaite
 - Temporary overdraft of Trinity Aquifer
- Irrigation
 - Water allocated from County-Other

WMS Discussion – San Saba County

San Saba Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	0	0	0	(3)	(3)	(5)
<i>(No. of WUGs)</i>	0	0	0	1	1	1
Irrigation	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Mining	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Steam Electric	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
TOTAL	0	0	0	(3)	(3)	(5)
<i>WUGs</i>	0	0	0	1	1	1

- No new or changed strategies

WMS Discussion – Travis County

Travis Shortage						
	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	(3,538)	(5,682)	(14,531)	(16,964)	(40,234)	(74,831)
<i>(No. of WUGs)</i>	<i>7</i>	<i>8</i>	<i>13</i>	<i>15</i>	<i>18</i>	<i>18</i>
Irrigation	(124)	(114)	(105)	(97)	(89)	(82)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Livestock	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Manufacturing	(3,731)	(4,520)	(5,311)	(6,110)	(6,842)	(7,487)
<i>WUGs</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Mining	0	0	0	0	0	0
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Steam Electric	0	0	(170)	(1,170)	(5,170)	(6,170)
<i>WUGs</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
TOTAL	(7,393)	(10,316)	(20,117)	(24,341)	(52,335)	(88,570)
<i>WUGs</i>	<i>9</i>	<i>10</i>	<i>16</i>	<i>18</i>	<i>21</i>	<i>21</i>

WMS Discussion – Travis County New Strategies

- Pflugerville
 - Amend contract with LCRA

- Note:
 - Desalination of brackish Edwards-BFZ groundwater may also be an appropriate strategy or alternative strategy for certain Travis County WUGs.

WMS Discussion – Wharton County

Wharton Shortage

	2010	2020	2030	2040	2050	2060
Municipal (ac-ft)	0	0	(4)	(4)	0	0
<i>(No. of) WUGs</i>	0	0	1	1	0	0
Irrigation	(58,218)	(53,525)	(48,997)	(44,636)	(40,429)	(24,462)
<i>WUGs</i>	2	2	2	2	2	2
Livestock	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	(8)
<i>WUGs</i>	0	0	0	0	0	1
Mining	0	0	0	0	0	0
<i>WUGs</i>	0	0	0	0	0	0
Steam Electric	(2,300)	(2,300)	(2,300)	(2,300)	(2,300)	(2,382)
<i>WUGs</i>	1	1	1	1	1	2
TOTAL	(60,518)	(55,825)	(51,301)	(46,940)	(42,729)	(26,852)
<i>WUGs</i>	3	3	4	4	3	5

WMS Discussion – Wharton County New Strategies

- Steam-Electric
 - New Gulf Coast Aquifer well field
(Brazos-Colorado Basin)
 - Purchase water from LCRA/Highland Lakes
(Colorado Basin)

WMS Discussion – Williamson County

- No shortages

WMS Discussion

- Additional strategies being looked at:
 - Enhanced recharge of Gulf Coast Aquifer in Lower Basin
 - Groundwater / Brackish Groundwater strategy for Goldthwaite
 - Still addressing details of COA / LCRA Settlement Agreement