

HDR



Potentially Feasible Water Management Strategies

Brazos G Scope of Work Comm

July 17, 2018



Background

Regional water planning rules require that the “process” for identifying, evaluating and selecting water management strategies be formally considered by the regional water planning groups



Selection of Water Management Strategies

Three aspects:

1. Identification of “potentially feasible” water management strategies
2. Evaluation of water management strategies
3. Selection of water management strategies to meet needs



Identification of Potentially Feasible Water Management Strategies

Three-step process:

1. Include strategies identified in previous plans
 - Recommended and alternative strategies from 2016
 - Strategies evaluated, but not recommended in 2016
 - Strategies evaluated in 2001 – 2011 Plans that were not moved forward
2. Identify draft needs (Aug 2018) and brainstorm additional ideas to meet those needs
3. Ongoing communication from local interests in 2018 – 2020

Determine initial list of “potentially feasible” strategies today

Add additional strategies later if local interests request and time/budget allow



Selection of Water Management Strategies to Meet Needs

- Some strategies are identified for specific WUGs/WWPs
- Some strategies are identified initially w/out specific users
- WUGs and WWPs make preferences known during 2018 – 2020
- HDR recommends strategies when WUGs/WWPs do not communicate preferences
- Opportunities for comments/requests by WUGs and WWPs
 - WUG/WWP survey after needs are identified?
 - Regularly scheduled meetings throughout planning process
 - Directly to HDR, BRA and individual planning group members
 - At three subregional meetings, following completion of draft Initially Prepared Plan
 - During public comment period following completion of Initially Prepared Plan



Tasks for Today

- Review previously identified water management strategies
- Listen to public input regarding potentially feasible strategies
- Identify those strategies that we may want to evaluate for 2016 Plan
- Identify those strategies that we no longer want to consider
- Direct HDR to develop a proposed scope of work for evaluating strategies



Identify Potential Strategies

- HDR reviewed 2001, 2006, 2011 and 2016 Plans
- Initial list of 102 potentially feasible strategies to consider
 - Not all permutations or options in initial list
- Tables to follow
 - Recommend moving all recommended and alternative strategies from 2016 forward
 - Strategies evaluated but not recommended in 2016?



Potentially Feasible Strategies

No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Conservation and Demand Management								
1	Municipal Conservation		X	X	R	na	na	1.45
2	Industrial Conservation		X	X	R	na	na	
3	Irrigation Conservation		X	X	R	na	na	0.70
4	Advanced Municipal Conservation (gpcd < 140)				R	na	na	
5	Advanced Industrial Conservation				R	na	na	
6	Drought Management		X	X	X			
7	Leave Needs Unmet				R			



Potentially Feasible Strategies

No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
New Reservoirs								
8	Breckenridge Reservoir		X			28,920	\$ 82,755,000	0.69
9	Brushy Creek Reservoir			X	R	1,450	\$ 20,836,000	1.48
10	Cedar Ridge Reservoir		X	X	R	26,575	\$ 290,868,000	3.16
11	Coryell County Off-Channel Reservoir			X	R	3,135	\$ 42,246,000	4.31
12	Double Mtn. Fork (East) Reservoir		X	X		36,025	\$ 211,373,000	1.37
13	Double Mtn. Fork (West) Reservoir		X	X		34,775	\$ 151,456,000	1.02
14	Lake Bosque	X				17,900	\$ 67,063,000	0.83
15	Groesbeck Off-Channel Reservoir	X	X	X	R	1,755	\$ 11,909,000	1.89
16	Hamilton County Reservoir				X	9,275	\$ 153,839,000	5.90
17	Lake Creek Reservoir				A	14,500	\$ 193,524,000	4.01
18	Lake Palo Pinto Off-Channel Reservoir		X	X	A	3,110	\$ 34,685,000	3.01
19	Little River Off-Channel Reservoir	X	X	X	R	56,150	\$ 248,761,000	1.27
20	Little River Reservoir			X		71,275	\$ 331,705,000	1.01
21	Brazos River Main Stem Off-Channel Reservoir				X			
22	Meridian Off-Channel Reservoir	X		X	A	615	\$ 21,702,000	12.15
23	Millican-Bundic Reservoir	X	X			38,080	\$ 464,764,000	2.80
24	Millican-Panther Reservoir			X		194,500	\$ 1,159,907,000	1.90
25	Paluxy Reservoir	X				16,300	\$ 74,147,000	1.03
26	Peach Creek Off-Channel Reservoir	X	X	X	X	4,240	\$ 66,852,000	4.40
27	Somervell County Off-Channel Reservoir	X				2,000	\$ 24,633,000	3.38
28	South Bend Reservoir	X	X	X	X	62,100	\$ 504,509,000	1.73
29	Throckmorton Reservoir			X	R	3,540	\$ 28,041,000	1.85
30	Turkey Peak Reservoir		X	X	R	8,100	\$ 83,363,000	2.30
31	Wheeler Branch Off-Channel Reservoir		X	X		1,800		



Potentially Feasible Strategies

No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
New Groundwater Supplies								
32	Brazos River Alluvium - various entities	X			R			
33	others	X	X	X	R			
34	Gulf Coast Aquifer - various entities			X	R			
35	Trinity Aquifer - various entities			X	R			
36	Edwards Aquifer - various entities			X	R			
37	Sparta Aquifer - various entities				R			
38	Dockum Aquifer - various entities				R			
39	Woodbine Aquifer - various entities				R			
40	Blaine Aquifer - various entities				R			
41	Yegua-Jackson Aquifer - various entities				R			
42	Seymour Aquifer - various entities				R			



Potentially Feasible Strategies

No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Conjunctive Operation of Existing Supplies								
43	BRA System Operation - various projects to utilize new supply		X	X	R	247,320		
44	Coordinated use of Fort Phantom Hill and Hubbard Creek Reservoirs	X						
45	Coordinated Use of Lake Leon Water Supply with Local Groundwater	X						
46	Oak Creek Reservoir Conjunctive Management			X	R	4,142		
Aquifer Storage and Recovery								
47	Bryan ASR				R	19,839	\$ 57,328,000	1.18
48	College Station ASR				R	2,800	\$ 63,850,000	9.42
49	Trinity ASR in Johnson County (Johnson County SUD and Acton MUD)		X	X	A	3,400	\$ 22,045,300	4.61
50	Trinity ASR in McLennan County		X	X	R	8,000	\$ 50,516,000	2.31
51	Lake Granger ASR (Trinity Aquifer)				R	9,050	\$ 59,060,000	2.67
52	Seymour ASR Project	X	X	X		3,750	\$ 18,826,000	1.45



Potentially Feasible Strategies

No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Reuse								
53	Reuse Supply - various reuse projects throughout Brazos G		X	X	R	83,527	\$ 160,277,000	2.82
54	College Station DPR				A	2,800	\$ 56,192,000	10.69
55	College Station Non-Potable Reuse				R	103	\$ 1,705,000	5.15
56	City of Bryan Lake Bryan Reuse				R	605	\$ 8,989,000	4.75
57	City of Bryan Miramont Reuse				R	600	\$ 2,544,000	1.25
58	City of Cleburne Reuse				R	2,031	\$ 14,059,000	2.26
59	Waco WMARSS Reuse Projects		X	X	R	7,847	multiple	multiple
60	Bell County WCID No. 1 Reuse			X	R	1,925	\$ 12,146,000	2.35
61	TRA Reuse - Joe Pool		X	X		20,000	\$ 79,257,000	1.84



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No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Regional Projects								
62	Lake Belton to Lake Stillhouse Hollow Pipeline			X	R	30,000	\$ 38,069,000	154.00
63	Bosque County Regional Project	X	X	X	R	1,070	\$ 21,792,000	6.99
64	Brushy Creek RUA Water Supply Project	X	X	X	R	67,000	\$ 314,847,000	3.46
65	East Williamson County Water Supply Project			X	R	8,400	\$ 42,127,000	3.60
66	Phase I Lake Whitney Water Supply Project			X	R	2,128	\$ 42,221,700	8.75
67	Future Phases of Lake Whitney Water Supply Project			X	R	7,572	\$ 110,843,000	2.84
68	Somervell County WSP			X	R	600	\$ 35,249,000	18.20
69	West Central Brazos Water Distribution System	X	X	X	R	1,400	\$ 21,148,000	7.65



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No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Augmentation of Existing Supplies								
70	Gibbons Creek Reservoir Expansion			X	R	2,605	\$ 12,979,000	1.10
71	Lake Aquilla Storage Reallocation			X	R	2,400	\$ 21,887,000	2.65
72	Lake Aquilla Augmentation - Cleburne (Lake Whitney to Aquilla)				R	14,700	\$ 88,231,000	3.19
73	Lake Cisco Augmentation	X				500	\$ 4,700,000	2.95
74	Lake Granger Augmentation		X	X	A	46,265	\$ 637,057,000	4.94
75	Lake Granger Storage Reallocation			X	A	1,940	\$ 28,710,000	4.76
76	Lake Stillhouse Hollow Reallocation				A	2,643	\$ 36,553,000	3.61
77	Lake Whitney Reallocation	X			A	20,842	\$ 89,948,000	1.11
78	Lake Whitney Over-Drafting Supply with Off-Channel Reservoir							
79	Lake Leon Augmentation	X				9,100	\$ 2,200,000	
80	Lake Stamford Augmentation	X				6,680	\$ 6,300,000	
81	Lake Sweetwater Augmentation	X				790	\$ 3,000,000	
82	Millers Creek Reservoir Augmentation			X	R	775	\$ 2,549,700	7.38
83	BRA Sediment Reduction Program			X	A			
84	South San Gabriel Diversion into Lake Georgetown							



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No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Chloride Reduction or Treatment								
85	Brackish GW Desal	X		X	X			
86	Chloride Control Project (SFWQC)			X	R			
87	Supplies from Chloride Control Project - Aspermont, Jayton, Region O							
88	Lake Whitney Desal	X				11,202	\$ 29,085,000	1.58
89	Ocean Water Desal							
90	BRA SWATS reallocation of capacity	X		X	X			



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No.	Strategy	2001	2006	2011	2016	Supply Developed (acft/yr)	Project Cost	Cost of Water (\$/1,000 gals)
Other Strategies								
91	Purchase and Use of Water from Possum Kingdom - Abilene				A	14,800	\$ 269,334,000	7.93
92	Brackish Groundwater				X			
93	Brush Control		X	X	R	0	\$ 7,532,000	
94	Restructure Contracts			X	R			
95	Subordination Agreements			X	R			
96	Weather Modification	X	X	X				
Misc Strategies								
97	Misc. Pipelines, Pump Stations and GW Options - various entities	X	X	X	R			
98	Misc. Purchases, Interconnects and Reallocations - various entities	X	X	X	R			
99	Rehabilitate Existing Wells			X	R			
100	Purchase from Walnut Creek Mine - Robertson County SE				R	9,000	N/A	1.55
101	Purchase from SAWS Vista Ridge Project (Williamson County)				R	5,700	None	6.68
102	Water Treatment Plant Expansions - various entities	X	X	X	R			
New Supplies from Other Planning Areas								



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