



1 **TO:** JERRY KENNY, EXECUTIVE DIRECTOR (ED)
2 **FROM:** EXECUTIVE DIRECTOR'S OFFICE (EDO)
3 **SUBJECT:** DRAFT SUMMARY OF WATER ACTION PLAN BUDGET ALTERNATIVES
4 **DATE:** JANUARY 20, 2016 (REVISED FEBRUARY 22, 2016)

5 The EDO completed various budget alternatives with different J-2 Regulating Reservoir sizes, broad-
6 scale recharge operations and water leasing options, as requested by the Governance Committee (GC) at
7 the December 2015 meeting. A summary of the alternatives is described in this memorandum and more
8 detailed analyses are provided in Appendix A for each scenario.

9 10 **J-2 Reservoir Alternatives**

11 The EDO evaluated the reservoir concepts with capacities of 7,400 acre-feet (AF), 10,500 AF and 11,900
12 AF. The reservoir sizes in the analysis are from RJH's design concepts presented at the December 2015
13 GC meeting. RJH presented estimated construction costs for each concept; however, the construction cost
14 contingencies range from +30% to -20% of the estimated costs. The budgets in Appendix A do not
15 include operation and maintenance costs. The Program's portion of the construction cost is 75%.

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17 The land cost for each reservoir concept was evaluated at \$9,600/acre (current fair-market land values),
18 \$15,000/acre (mid-range estimate between fair-market values and asking price) and \$25,000/acre (asking
19 price from landowners during initial discussions in reservoir feasibility). It was assumed 720 acres¹ would
20 be purchased (based on a general estimate by RJH) for testing and the reservoir would be built within the
21 720-acre footprint. Some of land could be re-sold after construction; however, this was not taken into
22 account. It was assumed the Program would pay for 75% of land costs.

23 24 **Broad-Scale Recharge Alternatives**

25 The broad-scale recharge alternatives included a 10,000 AFY score option (cost of about \$6 million) and
26 a 20,000 AFY score option (cost of about \$12 million). The costs and scores are preliminary. The scores
27 may be less when evaluating broad-scale recharge projects in conjunction with the J-2 Regulating
28 Reservoir, Phelps County Canal groundwater recharge and other projects using excess flows.

29 30 **Water Leasing Alternatives**

31 There is one budget alternative that assumes the Program ceases water leasing projects after 2016. It
32 assumes no more funding goes towards water leasing projects and there is no score associated with water
33 leasing projects (leasing score assumed to be 0 AFY for the First Increment). This alternative also
34 assumes the Program designates \$12 million for broad-scale recharge projects.

35 36 **Results**

37 Table 1 is a summary of the budget alternatives presented in Appendix A. The Program's water budget is
38 \$93 million in 2005 dollars. The red text indicates alternatives within the Program's \$93 million budget².
39 The dark red text indicates alternatives ranging from \$93 million to \$98 million (scenarios close within
40 the budget). The scores in bold black text represent scores that reach the minimum 50,000 AFY score
41 goal for Water Action Plan (WAP projects).

¹ Note that the 720 acres is an initial estimate from RJH; additional lands may need to be purchased.

² The \$93 million budget (2005 dollars) is not updated to reflect 2016 dollars in this memorandum.



42 Budget Alternatives Summary:

- 43 • J-2 Regulating Reservoir: all budget alternatives include a reservoir, either at 7,400 AF capacity,
44 10,500 AF capacity or 11,900 AF capacity,
- 45 • Broad-scale Recharge: all budget alternatives include the broad-scale recharge concept, either
46 designated at an estimated 10,000 AFY score (cost of about \$6 million) or an estimated 20,000
47 AFY score (cost of about \$12 million) towards development of recharge in the Central Platte
48 basin. Note that the score and cost estimates are preliminary and subject to change.
- 49 • Water Leasing: one budget alternative does not include leasing after 2016 (see Columns H and I
50 in Table 1); all other budget alternatives assume water leasing projects continue through the First
51 Increment.

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53 Results Summary for Scenarios:

- 54 • If any of the reservoir concepts have a construction cost at +30% of the estimate, the budget of
55 \$93 million is insufficient to cover reservoir construction costs plus other WAP projects; unless
56 the budget is re-worked. Note that additional funds also have to be allocated for reservoir
57 operation and maintenance in the future.
- 58 • The 7,400 AF capacity reservoir can only reach the score goal of 50,000 AFY if the Program
59 designates \$12 million towards broad-scale recharge projects (estimated 20,000 AFY score) and
60 continues some water leasing (1,100 AFY of water leasing score needed with this scenario), or a
61 similar combination of recharge and leasing.
- 62 • The 10,500 AF capacity reservoir is likely within the budget (or close within the budget) if the
63 reservoir construction is RJH's estimated cost or -20% (and the Program includes \$6 million in
64 recharge with a 10,000 AFY score + future water leasing, or \$12 million in recharge with a
65 20,000 AFY score and no water leasing, or a similar combination). All the 10,500 AF capacity
66 budget scenarios reach the score goal of 50,000 AFY.
- 67 • The 11,900 AF capacity reservoir is only within the Program budget (or close within the budget)
68 if the construction cost is -20% of the estimated cost by RJH. The Program could reduce the
69 broad-scale recharge budget or water leasing budget and still reach the 50,000 AFY score goal;
70 this may free-up some additional budget for the reservoir if costs exceed the -20% contingency.
- 71 • The 10,500 AF and 11,900 AF capacity reservoir scenarios can reach the score goal without
72 future water leasing, as long as there is broad-scale recharge at \$12 million and 20,000 AFY score
73 (could also reduce broad-scale recharge from \$12 million to free up budget for reservoir
74 construction or reduce total budget, and still reach score goal).

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76 Additional budget alternatives can be evaluated if requested by the GC.



77 **Table 1. Budget alternatives summary.**
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Reservoir Capacity (A)	Land Cost/Acre (B)	Contingency (C)	Alternative with Recharge at 10,000 AFY Score (~\$6M)		Alternative with Recharge at 20,000 AFY Score (~\$12M)		Alternative with Recharge at 20,000 AFY Score (~\$12M) Without Leasing	
			Total Cost (millions) (D)	PRRIP Score at Grand Island (AFY) (E)	Total Cost (millions) (F)	PRRIP Score at Grand Island (AFY) (G)	Total Cost (millions) (H)	PRRIP Score at Grand Island (AFY) (I)
7,400 AF	\$ 9,600	+30% Cost	99.1 84.1	48,000	105.1 90.1	58,000	97.6 82.5	48,900
		-20%	74.0		80.0		72.5	
		\$ 15,000	+30% Cost		102.0 87.0		108.0 93.0	
	-20%		76.9		82.9		75.4	
	\$ 25,000		+30% Cost		107.4 92.4		113.4 98.4	
		-20%	82.3		88.3		80.8	
10,500 AF		\$ 9,600	+30% Cost	112.8 94.6	53,200	118.8 100.6	63,200	111.3 93.0
	-20%		82.4	88.4		80.9		
	\$ 15,000		+30% Cost	115.7 97.5		121.7 103.5		114.2 96.0
		-20%	85.3	91.3		83.8		
		\$ 25,000	+30% Cost	121.1 102.9		127.1 108.9		119.6 101.4
	-20%		90.7	96.7		89.2		
11,900 AF	\$ 9,600		+30% Cost	120.6 100.6	55,300	126.6 106.6	65,300	119.1 99.0
		-20%	87.2	93.2		85.7		
		\$ 15,000	+30% Cost	123.5 103.5		129.5 109.5		122.0 102.0
	-20%		90.1	96.1		88.6		
	\$ 25,000		+30% Cost	128.9 108.9		134.9 114.9		127.4 107.4
		-20%	95.5	101.5		94.0		

Notes:

- (A) Reservoir capacities based on RJH's December 2015 GC meeting presentation.
- (B) Ranges of land costs on a per-acre value basis. It is assumed each reservoir scenario includes 720 acres of acquisition.
- (C) Total budget with reservoir construction cost contingencies ranging from +30% of RJH's estimate ("cost") to -20% of RJH's estimate.
- (D) Budget alternative assuming a J-2 Reservoir, broad-scale groundwater recharge at \$6 million budget, and includes water leasing through 2019.
- (E) The Program's portion of the total score for WAP projects for scenario in Column (D).
- (F) Budget alternative assuming a J-2 Reservoir, broad-scale groundwater recharge at \$12 million budget, and includes water leasing through 2019.
- (G) The Program's portion of the total score for WAP projects for scenario in Column (F).
- (H) Budget alternative assuming a J-2 Reservoir, broad-scale groundwater recharge at \$12 million budget, and elimination of future water leases after 2016.
- (I) The Program's portion of the total score for WAP projects for scenario in Column (H). No future leasing costs past 2016; 0 AFY score for leasing.

*Red values signify costs within the \$93 million water budget (2005 dollars). Dark red values show costs between \$93 - \$98 million.

Gray values show scores below the 50 kAFY goal.

79 Some costs and scores are preliminary and subject to change.