All Alternatives Considered but Not Analyzed in Detail

2006 Boise/Payette Water Storage Assessment Report (further refined from 2016 Boise GI)

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
1	Alexander Flats Dam (300 ft) Middle Fork of the Boise River	88	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment Environmental Impacts - designated ESA critical habitat - new fish passage barrier Ability to Implement - State-designated Natural/ Recreation River Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	**N**
2	**Anderson** **(<6 ft)**	**<29**	**Construction Cost/Water Yield** **- spillway bridge modification required > 1ft raise** **Environmental Impacts** **- designated ESA critical habitat**	**Y**
3	**Anderson** **(6 ft)**	**29**	**Environmental Impacts** **- designated ESA critical habitat**	**Y**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
4	Anderson Ranch Dam Raise (>6 ft)	>29	Construction Cost - abutment (geology) - slope (grade) - gatehouse (replace) - outlet works (reservoir head/flood) Environmental Impacts - designated ESA critical habitat Too high construction costs and increased ecological impacts to be feasible-excluded from considered in EIS.	**N**
5	Arrowrock Dam Raise (<10 ft)	<20	Construction Cost/Water Yield - arch/concrete structure - abutment (geology) - spillway (modify) Environmental Impacts - designated ESA critical habitat - NHPA designation (National Register listed historic site, National Historic Civil Engineering Landmark) Mitigation Cost - NHPA The overall estimated cost and questionable dam integrity with any raise would make this project technically and economically infeasible-excluded from consideration in EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
6	Arrowrock Dam Raise (10 ft)	20	Construction Cost/Water Yield - arch design/concrete (structure) - abutment (geology) - spillway (modify) - outlet works (reservoir head) Environmental Impacts - designated ESA critical habitat - NHPA (National Register listed historic site, National Historic Civil Engineering Landmark) Mitigation Cost - NHPA The overall estimated cost and questionable dam integrity with any raise would make this project technically and economically infeasible-excluded from consideration in EIS.	**N**
7	Arrowrock Dam Raise (>10 ft)	>20	Construction Cost/Water Yield - arch/concrete structure - abutment (geology) - spillway (replace) - roadway (move) Environmental Impacts - designated ESA critical habitat - NHPA designation (National Register listed historic site, National Historic Civil Engineering Landmark) - designated Roadless Area	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			Mitigation Cost - NHPA The overall estimated cost and questionable dam integrity with any raise would make this project technically and economically infeasible-excluded from consideration in EIS	
8	Barber Flats Dam (220 ft) North Fork of the Boise River	80	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment. Environmental Impacts- designated ESA critical habitat- new fish passage barrier Ability to Implement- State-designated Natural/ Recreation River Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	**N**
9	Barber Flats Dam (330 ft) North Fork of the Boise River	190	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment. Environmental Impacts - designated ESA critical habitat - new fish passage barrier	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			Ability to Implement - State-designated Natural/ Recreation River Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	
10	Dunnigan Creek Dam off-stream storage site (tributary to Lucky Peak Reservoir) Pump station to deliver water from Payette basin to Boise basin (out of basin transfer) and new dam to store pumped water and capture natural flow from More's Creek.	227 (USACE, 2010)	Ability to implement - out of basin transfer O&M Cost - increased annual pumping costs Environmental Impacts - designated ESA critical habitat - new fish passage barrier Economic costs appraisal indicates only a fair economic possibility (Reclamation 1994). Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	**N**
11	Grimes Creek Dam off-stream storage site (tributary to Lucky Peak Reservoir)	1500	Minimum annual inflow, minimum residual volume, and minimum annual refill; unreliable water source Construction Cost/Yield (high)	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			Too high construction costs to be economically feasible-excluded from considered in EIS.	
12	Indian Creek-Mayfield Dam Off-stream storage site, proposed new dam	52	Minimum annual inflow, minimum residual volume, and minimum annual refill; unreliable water source Construction Cost/Yield (high) O&M Cost - increased annual pumping costs Too high construction costs to be economically feasible-excluded from considered in EIS.	**N**
13	Krall Mountain Dam Off-stream storage site, proposed new dam	121	Minimum annual inflow, minimum residual volume, and minimum annual refill; unreliable water source Construction Cost/Yield (high) O&M Cost - increased annual pumping costs Too high construction costs to be economically feasible-excluded from considered in EIS.	**N**
14	Lucky Peak Dam Raise (<4 ft)	<10	Alternative violates planning constraint (dam safety).	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			Ability to Implement - Quantified Risk Assessment not complete (USACE), required to perform feasibility Construction Costs - spillway - saddle dike Environmental Impact - recreation The potential increase in overall flood risk makes project technically infeasible-excluded from consideration in EIS.	
15	Lucky Peak Dam Raise (4 ft)	10	Alternative violates planning constraint (dam safety). Ability to Implement (Safety of Dams) - Quantified Risk Assessment not complete by USACE required to perform feasibility Construction Costs - spillway - saddle dike Environmental Impact - recreation	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			The potential increase in overall flood risk makes project technically infeasible-excluded from consideration in EIS.	
16	Lucky Peak Dam Raise (>4 ft)	>10	Alternative violates planning constraint (dam safety). Ability to Implement (Safety of Dams) - Quantified Risk Assessment not complete by USACE required to perform feasibility Construction Costs - spillway - saddle dike Environmental Impact - recreation The potential increase in overall flood risk makes project technically infeasible-excluded from consideration in EIS.	**N**
17	Rabbit Creek Dam North Fork of the Boise River, proposed new dam	152 (Reclamation, 1994)	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment Environmental Impacts (high) - designated ESA critical habitat	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
			- new fish passage barrier Ability to Implement (moderate) - State-designated Natural/Recreation River Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	
18	Twin Springs Dam (415 ft)Middle Fork of the Boise River	304 (USACE, 2010)	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment. Environmental Impacts (high)- designated ESA critical habitat- new fish passage barrier Ability to Implement (high)- State-designated Natural/Recreation River Too many/magnitude of environmental impacts to be feasible-excluded from consideration in EIS.	**N**

Conservation

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
19	Public Education Programs	unknown, estimated marginal	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced demand could increase water reliability of current system (refill capability) but does not provide new water. Treasure Valley DCMI use is from the deep aquifer; reduced consumptive DCMI has less benefit to Boise River water. Ability to implement - Several programs currently underway. Does not meet the purpose and need of the EIS.	**N**
20	Incentive Programs for Demand Reduction (tax credits, payment for fallow land, planting lower water use/lower profit crops, etc.)	unknown, estimated marginal unless large-scale program could be achieved	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced demand could increase water reliability of current system (refill capability) but does not provide new water. Ability to implement - Lack of authority - Needs to initiate at local level, scale up to achieve significant savings Does not meet the purpose and need of the EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
21	Regulatory Water Rights Reallocation	unknown, estimated marginal unless large-scale agriculture could be achieved	Alternative does not meet primary planning objective (capture and store additional runoff). Alternative violates planning constraint (State water right law). Ability to Implement - State legislation required Does not meet the purpose and need of the EIS.	**N**
22	Canal Lining	0	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced demand could increase water reliability of current system (refill capability) but does not provide new water. Ability to implement - Water models indicate net zero benefit from canal lining due to downstream dependency on natural/return flows. Environment Impact - Groundwater impact - Return/natural flows impact No net benefit of reliable water savings makes canal lining not a feasible alternative for inclusion in this EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
23	Automating Canal Systems	minimal	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced demand could increase water reliability of current system (refill capability) but does not provide new water. Ability to implement - automation more than 90% complete in basin Does not meet the purpose and need of the EIS.	**N**
24	Conversion from Flood to Sprinkler/Drip Irrigation	unknown, estimated to be significant	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced demand could increase water reliability of current system (refill capability) but does not provide new water. Alternative violates planning constraint (negative impact to existing space holders) Ability to implement - Requires orders-of-magnitude higher numbers of participants (done at farm-by-farm level) Environmental Impact - Negative impact to incidental aquifer recharge Does not meet the purpose and need of the EIS.	**N**

Other

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
25	Dredging in Anderson Ranch Reservoir	25	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment. Construction/O&M Cost- Cost estimates, based off recent projects, exceed $1B Environmental Impact- multiple environmental impacts Ability to implement- lack of discharge/waste site Too high of cost to be considered feasible-excluded from consideration in EIS.	**N**
26	Store Water in Anderson Ranch Surcharge Space	3	Alternative violates planning constraint (dam safety) Violates dam safety and potentially increasing flood risk making this project infeasible-excluded from consideration in EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
27	Managed Aquifer Recharge/ Aquifer Storage and Recovery (ASR)	48	State sponsored feasibility study draft report complete (analyzing water availability. potential recharge location, and estimated delivery system) Ability to implant - State statute needed for ASR Environmental Impact - Additional analysis needed to determine aquifer characteristics (retention time, flow, ability to access, etc.) Managed recharge is too speculative of a potential alternative to be feasible and analyzed in this EIS.	**N**
28	Cloud seeding for Snowpack Enhancement	unknown	Alternative does not meet primary planning objective (capture and store additional runoff). Increased snowpack could increase water reliability of current system (refill capability) but does not provide new water. Ability to implement - implementation >90% complete Does not meet the purpose and need of the EIS.	**N**
29	Wastewater Reuse	unknown,	Alternative does not meet primary planning objective (capture and store	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
		estimated marginal	additional runoff). Construction/O&M costs - Infrastructure design, estimate, and implementation. Ability to implement - Lack of authority - implemented at local level - Many municipalities actively implementing. Does not meet the purpose and need of the EIS.	
30	Divert (pump) from Snake River (out of basin transfer) to Treasure Valley	unknown	Alternative was initially considered in the Appraisal Study and did not meet the planning objective of maintaining/enhancing fish and wildlife environment Ability to implement - Snake River water rights required (out of basin) - no storage site for pumped water - analogous to Elmore Co. pumping plant project Environmental Impacted - flow augmentation impacted. Does not meet the purpose and need of the EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
31	Water Market - Reallocation (willing buyer/willing seller)	unknown	Alternative does not meet primary planning objective (capture and store additional runoff). Ability to implement - already in place (State Water Bank, local water brokers) Does not meet the purpose and need of the EIS.	**N**
32	Operational Changes to Boise River Dams Flood Control Rule Curves		Uncertain to meet primary planning objective Violates planning constraint (dam safety) Ability to implement - extensive USACE studies required - uncertain whether change would maintain/enhance fish and wildlife - uncertain whether change would reduce flood risk Violates dam safety and potentially increasing flood risk making this project technically infeasible-excluded from consideration in EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
33	Watershed-Scale Best Management Practices (BMPs) to Decrease Sedimentation Load to Anderson Ranch Dam (e.g. riparian buffers, water bars, reduce sediment from road)	unknown	Alternative does not meet primary planning objective (capture and store additional runoff). Reduced sedimentation could maintain current system capacity but does not provide new water. Construction Cost - significant investment to realize return Ability to Implement - lack of authority - Forest Service managed lands Does not meet the purpose and need of the EIS.	**N**
34	Hubbard Dam Expansion (expand existing reservoir footprint, deliver via New Work Canal)		Violates planning constraint (dam safety) Ability to implement - heavily populated area, lack of area to expand to realize additional water storage - limited conveyance capacity Violates dam safety and potentially increasing flood risk making this project technically infeasible-excluded from consideration in EIS.	**N**

No.	Considered but not Analyzed Alternative	Potential Yield (TAF)	Additional Planning Considerations and Rationale for Dismissal in EIS	Carry Forward
35	Blacks Creek Reservoir Expansion (expand existing reservoir footprint, pump water from Boise River)		Ability to implement- heavily populated area, lack of area to expand to realize additional water storage- no infrastructure (pump station, conveyance, etc.) Construction/O&M Costs- significant capital investment- significant annual pumping costs. Too high of construction costs to be economically feasible- excluded from considered in EIS.	**N**