

# Status of Water Supply Options Adopted in the Water Supply Feasibility Study (WSFS)

## GENERAL NOTES

- > Demand projections to 2050 include an additional need of 15,500 AF for water quality and 37,500 AF for municipal supply. Total new demand by 2050 is projected to be 53,000 AF.
- > All future water supply alternatives assume additional conservation, higher levels of wastewater reuse, increased ASR programs and additional wholesale supply purchased from the City of Portland.

## RESULTS

EVALUATION CRITERIA	SOURCE OPTIONS						
	20' Scoggins Raise	40' Scoggins Raise	40' Scoggins Raise + Sain Creek Tunnel	40' Scoggins Raise + Raw Water Pipeline Pump-Back	Stimson Dam	Willamette Irrigation Exchange Pipeline	Willamette WTP + 25' Scoggins Raise + Raw Water Pipeline Pump Back
New Yield at 90% reliability (AF) (1)	6,000	10,000	26,000	53,000	11,000	19,000	53,000 (6)
Reliability at 2050 demands (53,000 AF additional) (2)	Insufficient yield to meet 2050 demand (3)	18%	50%	93%	25%	Insufficient yield to meet 2050 demand (4)	95% (est.)
Environmental Impacts	Proportional to 40' raise impacts, less private property impact.	Most impacts to federally-owned property around reservoir. Impacts private property in some locations. Provides benefits to water quality of Tualatin River. Will require mitigation for wetlands and habitat.	Same as 40' raise alone, but additional impacts to Upper Tualatin River flows and fisheries due to winter-time diversion of water through Tunnel. Will require mitigation for wetlands and habitat.	Same as 40' raise alone, but additional impacts to lower Tualatin River from winter-time diversion. Potential water quality impact to Hagg Lake (currently under study). Will require mitigation for wetlands and habitat.	Higher environmental impacts compared to 40' Scoggins raise. Inundates park access road and entrance. Difficult access roadway construction. Will require mitigation for wetlands and habitat.	Assumed lower environmental impacts if the 23-mile, 54-inch pipeline can be tunneled under multiple stream crossings and sensitive areas.	Impacts associated with expansion of existing treatment plant have been addressed in previous permits. New treated water transmission line would be required. Impacts around Scoggins reservoir are proportional to 40' raise, with less private property impact. Additional impacts to lower Tualatin River from winter-time diversion for pump-back. Potential water quality impact to Hagg Lake (currently under study)
Capital cost (\$ million)	101	134	174	200	200	117-138 (5)	Being developed
Annual O&M cost (\$Million/yr)	0.3	0.3	0.4	0.9	0.3	0.4	Being developed
Net Present Value Unit cost (\$/AF) over 50 years	21,500	14,100	7,000	5,400	20,600	6,300	Being developed
ADDITIONAL CRITERIA							
Cost allocation	Assume costs can be allocated fairly for all options						
Legal / regulatory feasibility	Appears feasible for all dam options					Ability to get new water right in question	TVWD, Tigard, Tualatin require public vote to allow use of Willamette for drinking water supply
Emergency reliability	All options vulnerable to earthquake, natural disasters						
Recreation	Full replacement of affected facilities included in cost					No impacts for pipeline alone	Full replacement of affected facilities included in cost
Property impacts	Bigger dam options have more impact					Minimal if located in public roadways	Bigger dam options have more impact
Efficiency	Equivalent for all options						
Institutional/ financial feasibility	Appears feasible for all dam options					TVID opposed	TVWD, Tigard, Tualatin require public vote to allow use of Willamette for drinking water supply
Water quality (delivered)	Acceptable for all options						
Flood control	No additional	Additional 10-20 TAF	Additional 10-20 TAF	Additional 10-20 TAF	Additional 10-20 TAF	No additional	Unknown
Timeliness	Dam construction has longer timeframe than pipeline option						
Security	Equivalent for all dam options					May be more secure	Source diversification
IS THE OPTION PROPOSED FOR DETAILED STUDY UNDER THE EIS?	NO	NO	NO	YES	NO	NO	YES
Reasons	Insufficient yield, meets portion of demand target.	Insufficient yield, meets portion of demand target. Low reliability at 2050.	Insufficient yield, meets portion of demand target. Low reliability at 2050.	Meets projected demands at reliability >90%	Insufficient yield, meets portion of demand target. Low reliability at 2050. Would need to be combined with Tunnel (\$40M) or pump-back (\$65M) to meet yield and reliability targets.	Meets portion of demand target. Would need to be combined with dam raise. Ability to obtain new water right is uncertain. TVID would be the recipient of Willamette River supply, and on record as opposing this option.	Meets projected demands at reliability >90%

## NOTES

- (1) New yield is defined as the amount in excess of the current system yield under full contract demands.
- (2) This is only the reliability for the incremental demand component from present to 2050 (53,000 AF). The existing system reliability is 93% for M&I and 85% for CWS and TVID.
- (3) A 20-foot raise of Scoggins Dam provides an additional 24,300 AF storage capacity, which only represents 46% of the future demand increment (and is still subject to dry year shortages)

- (4) Irrigation exchange pipeline provides 19,000 AF at 100% reliability; this is only 36% of the future demand increment
- (5) Low-end estimate assumes water can be obtained at agricultural rate of \$8/af. If water is priced at M&I rate of \$1,500/af, cost increases by \$21M to high-end estimate.
- (6) This source option would provide 24,600 AF yield (for TVWD, Tigard, and Tualatin) at 100% reliability from the Willamette WTP Expansion, and 28,400 AF yield (for Hillsboro, Beaverton, and Forest Grove) at at least 93% reliability from the 25' Scoggins Dam Raise + RWP Pump-Back.

## GLOSSARY

- AF**  
Acre Feet
- ASR**  
Aquifer Storage and Recovery
- EIS**  
Environmental Impact Statement
- O&M**  
Operations & Maintenance
- TAF**  
1000 AF
- TVID**  
Tualatin Valley Irrigation District