

# **Tualatin Basin Water Supply Feasibility Study**

## **Review of Source Options – Cost Criteria**

Revised 9/03

The Tualatin Basin Water Supply Feasibility Study is to review water supply sources to meet the future water needs of the Tualatin Basin. The Study reviewed the alternatives analysis results of previous water supply studies conducted regionally and within the Tualatin Basin. An additional 50,000 acre-feet of water could be needed by the year 2050.

The analysis was a qualitative review process. Sources options were evaluated against a broad range of criteria. The cost criterion is one of the key elements of the alternatives analysis. In some cases, the cost criterion was not the determining factor for maintaining or removing a source option. Costs shown here represent the estimated current capital cost for each option, when available. These cost estimates are accurate to a planning level, which is defined as +50% to –30%. The following is a review of the estimated costs for the various source options reviewed.

### **Source Options Not Recommended for Further Study**

These options were ruled out, primarily due to high cost or other key criteria:

- **Stimson Dam – Downstream of Scoggins Dam and upstream of Stimson**
  - **Build a new dam to elevation 313 feet (existing height).**
    - Additional storage yield - 11,200 AF/year
    - Estimated cost - \$107 million
    - Cost per additional storage (\$ per acre-Ft) - \$9,590
  
- **Stimson Dam – 20 foot raise**
  - **Build a new Dam to elevation 333 feet (20 foot increase)**
    - Additional storage yield – 48,000 AF/year
    - Estimated cost - \$153 million
    - Cost per additional storage (\$ per acre-Ft.) - \$3,188
  
- **New in-line tributary storage –**
  - **New dams on Tualatin tributaries (Rock Creek and McKay Creek)**
    - Additional Storage yield - 35,000 AF/year
    - No cost information developed.
    - Regional Water Supply Plan did not develop cost information
    - Option removed due to other evaluation criteria
  
- **Off-line tributary storage**
  - **Construct storage facilities adjacent to streams for winter diversion or pumping.**
    - No cost information developed
    - Option removed due to other evaluation criteria, such as impacts to private property
  
- **Bull Run Dam #3 - Portland Water Supply System**
  - **Build a third dam in the Bull Run Watershed**
    - Additional Storage yield of 58,900 AF/year
    - Estimated cost - \$210 million

- Cost per additional storage (\$ per acre-ft.) – \$3,565
- Option being reviewed as part of the Regional Water Supply Plan Update
- Municipal yield reduced 50 %, due to instream flow and ESA requirements
- Additional transmission and storage facilities would be required for Westside municipal and industrial supply utilization, cost undetermined.

### **Source Options That Should Be Components of All Supply Alternatives**

These options were perceived as strongly positive in one or more evaluation criteria and should be considered as part of any overall water supply strategy.

- **Water conservation**
  - **Water suppliers Conservation programs**
    - Potential supply - 7,600 AF/year\*\*\*
    - No cost information currently available
    - Regional Water Supply Plan Update is reviewing programs and costs  
*(\*\*\*based on updated information, the yield is reduced to 5,000 AF/year)*
- **Wastewater reuse**
  - **Clean Water Services Recycled Wastewater Master Plan - 1992**
    - Additional storage yield – 3,500 AF/year\*\*\*
    - Estimated costs - \$53 million\*\*\*
    - Cost per additional storage (\$ per acre-ft.) – \$15,142
    - Reuse opportunities will need to be balanced with flow and water quality impacts on Tualatin River  
*(\*\*\*based on updated information, the yield is reduced to 1,000 AF/year and estimated cost is \$15 million)*
- **Aquifer storage and recovery (ASR)**
  - **ASR programs for M&I water suppliers**
    - Additional storage yield – 5,500 AF/year (municipal use only)
    - No programs costs developed to date
    - Cost information will available as part of the Regional Water Supply Plan Update
- **Near-term Additional Supply from Portland**
  - **Dam 2 Raise/Expansion and Transmission improvements**
    - Additional storage yield – 9,200 AF/year (municipal use only)
    - Estimated costs - \$45 million
    - Cost per additional storage (\$ per acre-ft.) – \$4,891

### **Source Options Recommended for Further Study**

These options met many of the criteria and were recommended for further study.

- **No Action**
  - **Tualatin Basin – reduced future water supply**
    - No cost estimates available

- Impacts of no increase in water supply on River flow and water quality, on irrigated agriculture and on lack of water to meet growth in municipal/industrial demand in the Basin
  
- **Scoggins Dam Raise (20 feet)**
  - **Raise Scoggins Dam/Hagg to elevation 325 feet**
    - Additional storage yield – 26,500 AF/year
    - Estimated costs - \$71 million
    - Cost per additional storage (\$ per acre-ft.) – \$2,679
  
- **Scoggins Dam Raise (40 feet)**
  - **Raise Scoggins Dam/Hagg Lake to elevation 353 feet**
    - Additional storage yield – 50,000 AF/year
    - Estimated costs - \$129 million
    - Cost per additional storage (\$ per acre-ft.) – \$2,580
  
- **Irrigation Exchange Pipeline from the Willamette River**
  - **Construct an irrigation exchange pipeline for trading Willamette River water for TVID irrigation supply in Hagg Lake.**
    - Additional storage yield – 25,000 AF/year
    - Estimated costs - \$96 million
    - Cost per additional storage (\$ per acre-ft.) – \$3,840