Boise River Feasibility Study

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BACKGROUND: The U.S. Army Corps of Engineers (Corps) and Idaho Water Resource Board (Board) collaborated on a feasibility study of the Boise River over the last several years. The primary goals of the effort were to identify ways to reduce flood risks and meet future water supply needs.

The Boise River flows for 102 miles through the State of Idaho to its confluence with the Snake River. Over half of the Boise River (64 miles) is located within Ada and Canyon Counties, and runs directly through the City of Boise, Idaho. Water is in limited supply in the lower Boise River watershed, and is shared between farmland and highly urbanized areas. Municipal and industrial water is primarily drawn from the groundwater aquifers, which are rapidly depleting. Agricultural water is supplied by surface water stored behind Lucky Peak Dam, operated by the Corps; and Arrowrock and Anderson Ranch dams, operated by the U.S. Bureau of Reclamation (Reclamation). These three federal dams are operated jointly for water storage, flood risk management, fish and wildlife, and recreation for the Boise River Valley. Growth continues to occur, particularly in the Boise area, and future water supply demands are expected to exceed available sources.

The Boise River has flooded many times. Flood stage is considered to be 7,000 cubic feet per second (cfs) as measured at Glenwood Bridge, although reports of localized flooding occur at 4,500 cfs. As urban areas within the floodplain continue to grow, flood damages will increase. The current level of flood protection is a 3-percent event, which means flooding of this magnitude has a 3-percent chance of occurring in any given year.

STUDY AUTHORITY: The Boise River GI was authorized by Section 414 of the Water Resources Development Act of 1999, as amended by Section 4038 of WRDA 2007. Section 4038 added water supply and ecosystem restoration as project purposes.

STUDY SCOPE: The Corps has studied water resource issues in the Boise River watershed on numerous occasions in the past, and has consistently identified several opportunities to address flood risks, water supply needs and ecosystem restoration opportunities.

The feasibility study was conducted in two phases. The first phase was an interim feasibility study that evaluated and documented existing conditions on the Boise River, evaluated public safety related to flooding, conducted a water storage analysis, and developed a path forward for the study. The initial water storage analysis was based on a 2006 Reclamation report, *Boise/Payette Water Storage Assessment Report*. The Corps worked with the Reclamation data, did further analysis, and identified a raise of Arrowrock Dam as the most viable storage alternative that could also reduce flood risks for Boise.

In 2014, the Corps and the Board restarted their collaborative effort to seek solutions for flood risk management and water supply with a planning workshop. They worked with the public, stakeholders, and federal and state agencies to identify alternatives capable of solving multiple water resource problems. As the study progressed, options were eliminated through a deliberative screening and analysis process.

The raising of Arrowrock Dam appeared to be the strongest option for solving both flood risk and water supply problems. Detailed modeling and cost estimates were then performed on several different dam raise heights, ranging from 30 feet to 74 feet. The effort also considered several flood risk reduction measures downstream.

After completion of extensive hydrologic and economic modeling, the Corps determined that costs exceeded the benefits of the dam-raise options. Based on these results, Corps involvement in raising Arrowrock Dam is not a viable solution. The study team presented this information and study details to the Board's Water Storage Committee during a special-session meeting in Boise on May 18. The Board will consider options to terminate the study and finalize work products or request approval from Corps Headquarters to reformulate the study.

It is important to remember that the results of this study do not negate the fact that significant flood-risks within Boise and surrounding communities still exists. Analysis shows that, while the existing system of dams reduces damages for most flood events, it does not have the capacity to prevent significant damages during less frequent, but more intense, flood events. A single large event could cause millions, and possibly billions, of dollars in damages to Boise infrastructure. Though rare, events of this magnitude are likely to happen in the future.

FUTURE OPTIONS: During the course of the Boise River feasibility study, many downstream flood risk management measures were considered. Water supply and the construction of other reservoirs were also considered. If the Board is interested in developing additional alternatives for flood-risk and water-supply options, the Walla Walla District will seek approval from Corps Headquarters to reformulate the study. This will include setting a new schedule and budget.

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Updated May 2016