

MEMORANDUM

To: City of Asheville City Council Finance Committee
From: Stephen Shoaf, Director of Water Resources
Date: February 12, 2013
Subject: Repairs to the North Fork Dam

The City of Asheville Water Resources Department has contracted Schnabel Engineering to perform inspections and evaluations of the North Fork and Bee Tree Dams. Inspection reports have highlighted deficiencies in the design and structural integrity of the dams for many years.

Recently, the characteristics of the seepage and cracking in the concrete tunnel enclosing the raw water line from the intake tower in the lake to the water treatment plant at the North Fork Dam are indicative of a serious and urgent situation requiring our attention.

Similar to when a house is remodeled and must be brought into compliance with code, repairs to the dam that exceed the level of routine maintenance trigger the need to comply with current NC Dam Safety regulations.

In 2012, with Council approval, Schnabel Engineering performed investigations into the potential deficiencies noted for the North Fork Dam. Their preliminary evaluations led to the identification of multiple design scenarios to address those deficiencies. Schnabel Engineering discussed those design scenarios with Water Resources staff on November 30, 2012. It was decided to meet with NC Dam Safety officials to review the findings and options. This meeting was held January 30, 2013.

Schnabel Engineering and the NC Dam Safety director agreed that the repairs necessary for the concrete tunnel were of primary importance. The potential failure associated with the concrete tunnel could lead to the failure of the dam itself. Currently Water Resources has sufficient funds identified to address the design and construction of these repairs. We will be coming to the Council for approval to contract with Schnabel Engineering and begin this project.

A deficiency in the spillway capacity to safely pass the design storm (the quantity of runoff water from the watershed into the reservoir from significant rainfall event) will require the construction of a new spillway for the North Fork Dam. Earth removed for the construction of the spillway will be placed on the main dam and the saddle dam to improve their stability. This is a large undertaking and will require design followed by roughly two years of construction. This project may potentially require in excess of \$30 million. Some of that money has been programmed into the capital improvement plan, but this project will require adjustments in priorities and outside funding (borrowing) to complete the project.

At this stage it is too early to know precisely when the spillway project will occur, or the level of funding required. We are trying to close some of the gaps in our information to come up with better cost estimates and a better time table moving forward. The impacts to our water rates are

also unknown at this time, so we will be coming back to this committee as we have better information.

I have asked Mark Landis of Schnabel Engineering to meet with you today and explain the scope of these projects and answer any questions. The table below outlines some very preliminary cost estimates for construction of the projects related to the dam. These estimates do not include the costs of permitting, design or construction oversight.

<u>PROJECT</u>	<u>ESTIMATED COST</u>
Spillway	\$26 million
Additional earth on Main dam	\$ 2.7 million
Additional earth on Saddle dam	\$ 0.8 million
Conduit remediation	\$ 1.5 million
Project Mobilization/ De-mobilization	\$ 1.55 million
Unidentified Items (Contingency)	\$ 2 million
Gate repairs	\$ 0.07 million
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TOTAL	\$34.6 million