CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Matt Cano

SUBJECT: **ANDERSON DAM SEISMIC RETROFIT PROJECT**

DATE: February 21, 2019

Approved D. DSyL Date 2/21/19

INFORMATION

The purpose of this memorandum is to provide a status update on the Anderson Dam Seismic Project that is being undertaken by the Santa Clara Valley Water District.

BACKGROUND

The Anderson Reservoir is located in the upper watershed areas of the Coyote Watershed which encompasses a drainage area of over 320 square miles. Below Anderson Reservoir is the Coyote Creek that flows northwest for approximately 42 miles, through unincorporated lands within eastern Santa Clara County, Morgan Hill, urbanized areas of San Jose, and the lower edge of Milpitas before entering the Lower South San Francisco Bay. The Anderson Reservoir, the largest surface water reservoir in Santa Clara county, is operated and managed by the Santa Clara Valley Water District (District) as a major source of water supply for the county.

A breach of Anderson Dam at full capacity could have catastrophic consequences, with uncontrolled release of water and inundation of surrounding land more than 30 miles northwest to San Francisco Bay, and more than 40 miles southeast to Monterey Bay. The District is undertaking a major project to retrofit and strengthen the dam so it can safely withstand a strong earthquake. The effort, known as Anderson Dam Seismic Retrofit Project, will ensure public safety and help secure a reliable water supply today and for future generations.

ANALYSIS

Recent seismic analyses have shown that a large earthquake on the Calaveras Fault or the Coyote Creek Fault could result in significant damage, which could lead to dam failure and catastrophic consequences. Until completion of the Anderson Dam Seismic Retrofit Project, the District will strive to limit the reservoir storage volume to about 58% of its total capacity to reduce any seismic risks or concerns. In the event the dam breached at 58% storage capacity, the potential

flood waters would flow northward along the US-101 alignment and eventually head into San José.

Completion of the Project will improve the dam's reliability and safety, and return the reservoir to its original storage capacity of approximately 90,000 acre-feet, which is enough water to supply about 900,000 people for a year.

The total project cost, including planning, design, environmental studies and permitting, and construction is estimated at $550 million. Part of the cost ($65 million) will be funded by the District's Safe, Clean Water and Natural Flood Protection Program, which Santa Clara County voters approved in November 2012, and the remaining cost will be funded by water rates.

The Anderson Dam Seismic Retrofit Project includes replacement of the existing spillway, installation of a temporary diversion system, removal and reconstruction of the dam embankment, and installation of outlet piping. The Project is currently in the design phase, and the construction is scheduled to begin in 2022 and expected to be completed in 2027, although if permits are acquired sooner than anticipated, construction could begin in 2021.

The Anderson Dam Seismic Retrofit Project will also propose a series of additional measures to reduce any residual flood risk in the event of extreme storm events during construction. During wet winter seasons, the dam and reservoir will be operated as a detention basin.

As part of the Project construction, the reservoir will be dewatered and flows will be passed through a water diversion structure during construction to protect the work area. Storm water runoff entering Anderson Reservoir will be released through a diversion system that will be constructed before the reservoir is dewatered. The District will operate the diversion system to minimize the risk of water overtopping the partially deconstructed dam, and to control the flow rate into Coyote Creek, minimizing downstream impacts.

Upon Project completion, the outlet piping improvements would replace a single outlet pipe (capable of releasing up to 425cfs) with a much larger multi-outlet pipe network capable of releasing approximately 1,200 cfs through valves into District pipelines and into Coyote Creek. Additionally, a redundant high-level outlet pipe will be installed capable of releasing up to 7,700 cfs in the event the spillway is compromised after a large earthquake.

The outlet piping improvements provide the District an enhanced operational management tool to better manage the reservoir storage level. Once the Anderson Dam Seismic Retrofit Project is complete, in the event that Anderson Reservoir is full or close to being full before storm events, the District will have the ability to rapidly release water in advance of the storm in order to preserve water storage capacity in the reservoir. Overall, the project still faces significant regulatory hurdles and the City is prepared to support the District in advancing this critical public safety project as quickly as possible.

Anderson Reservoir Readiness Operations During This Winter

The City and the District are working together as part of a Joint Emergency Action Plan to ensure the Anderson Reservoir readiness operations for this winter, which include controlled releases to minimize flooding downstream. The operation depends on the storage level in the reservoir and several other factors normally related to downstream impacts. The Anderson Reservoir is currently at around 46% storage capacity. Due to increased runoff from the recent storms, the Water District began implementing controlled releases from Anderson Reservoir on Tuesday, 5 February 2019. Anderson Reservoir operations are consistent with the Division of Safety of Dams operating guidelines and revised operating procedure adopted by the Water District's Board of Director's in October 2017. The revised operation will continue through the 2018-19 winter season, thereby providing a greater margin of safety and reducing the risk of flooding along Coyote Creek.

PUBLIC OUTREACH

For additional information about the Anderson Dam Seismic Retrofit Project, please refer to the Santa Clara Valley Water District website: https://www.valleywater.org/anderson-dam-project.

COORDINATION

This memo has been coordinated with the Santa Clara Valley Water District.

/s/
MATT CANO
Director of Public Works

For questions, please contact Michael O'Connell, Deputy Director, at (408) 535-8300.