TO:     HONORABLE CITY COUNCIL
FROM:  CITY MANAGER
DEPARTMENT: UTILITIES
DATE:  JUNE 4, 2007
CMR:254:07
SUBJECT: INFORMATION REGARDING RECOMMENDATIONS FOR THE
WATER DISTRIBUTION SYSTEM FROM THE CALIFORNIA SEISMIC
SAFETY COMMISSION

This is an informational report and no Council action is required.

BACKGROUND
In January 2000, the City’s primary water supplier, the San Francisco Public Utilities
Commission (SFPUC), released a report indicating that its regional water system is vulnerable to
great damage from a large earthquake and that water supplies could be cut off to the users,
including Palo Alto, for up to 60 days. On July 10, 2000, the Palo Alto City Council adopted a
resolution recommending that the SFPUC take prompt action to improve regional water supply
reliability and quality [CMR:311:00].

The agencies that purchase water from the regional system were members of the Bay Area Water
Users Association (BAWUA), which represented the agencies’ collective interests in their
interactions with the SFPUC. As an additional response to the risk of failure of the regional
water system and the lack of action by the SFPUC, BAWUA undertook a legislative campaign at
the beginning of 2002. BAWUA sponsored three bills, all of which were passed by the
Legislature and were signed into law in September 2002. One of those bills, Assembly Bill
2058, allowed the creation of the Bay Area Water Supply and Conservation Agency
(BAWSCA), with broad water planning and financial authorities. Since its formation in 2003,
BAWSCA has replaced BAWUA in its role representing the agencies that purchase water from
the SFPUC.

Another bill signed into law, Assembly Bill 1823, requires the SFPUC to complete certain key
projects in its capital program. AB 1823 required San Francisco to formally adopt the capital
improvement program prepared by SFPUC staff, including a schedule and financial plan to
complete all projects by 2015. In May 2002, SFPUC adopted a capital program to repair and
upgrade the regional water system. The capital program was later renamed the Water System
Improvement Program (WSIP).
AB 1823 acknowledges that the WSIP projects and schedules may change. If SFPUC does adopt changes to the WSIP that result in deletions of one or more projects or postpones the scheduled completion dates, it must provide the changes to the California Department of Health Services (CDHS) and the California Seismic Safety Commission (CSSC). Both the CDHS and the CSSC must review the proposed changes to the WSIP to determine if the changes would have an impact on human health and safety. Ninety days after receiving notice of any proposed changes to the WSIP, CDHS and CSSC must submit reports to the Joint Legislative Audit Committee (JLAC) with their conclusions.

In November 2005, the SFPUC adopted a revised WSIP which incorporated changes to scopes and schedules to the previously proposed capital program. On January 23, 2006, the SFPUC submitted a Notice of Changes to the WSIP to the CDHS and the CSSC as required by AB 1823.

**DISCUSSION**

*Report from the California Seismic Safety Commission*

The CSSC issued its report on the revised WSIP on April 17, 2006 (see Attachment A). That report generally finds that SFPUC’s revised WSIP is an improvement over the earlier adopted capital program. It also identifies several issues that will need to be considered in the future. Some of the report’s recommendations apply to local water distribution systems, including the SFPUC’s retail water system inside the City and County of San Francisco and the systems operated by BAWSCA’s member agencies:

1. Retail service providers, including the BAWSCA agencies and the SFPUC, should inform the public that, even after the WSIP is fully implemented, 30% of the system’s supply connection points to the BAWSCA agencies could be out of service for up to a month after a major earthquake.

2. SFPUC’s newly created Seismic Safety Task Force and other experts should be encouraged to evaluate critical, seismic-related design decisions.

3. Although modeling the regional impacts of earthquakes to the system overall are helpful, individual facilities in the system will require site-specific analyses to identify their engineering design requirements.

4. In order to meet the WSIP Level of Service goals, the WSIP engineering design effort should make use of the most up-to-date knowledge and understanding of how water transmission system components withstand the impacts of earthquakes.

5. The SFPUC should proceed as quickly as feasible with its Programmatic Environmental Impact Report (PEIR) for the WSIP, followed quickly by individual project EIRs.

6. The underlying reason for upgrading the San Francisco’s regional water system is to ensure that customers can receive sufficient water after an emergency such as an earthquake. To achieve this goal requires that the local water distribution systems be in a condition to deliver water from available sources to customers and that there are adequate
emergency response and recovery plans in place. Those plans should envision the possibility that supplies from the SFPUC regional system may not be available for a period of time after a large earthquake.

Joint Legislative Audit Committee
The JLAC received the reports from the CDHS and CSSC and, on February 13, 2007, Assembly Member Nell Soto, the Chair of the JLAC, sent a letter with the reports attached to the General Managers of SFPUC and BAWSCA. In her letter (see Attachment B), Assembly Member Soto urged SFPUC and BAWSCA members “to address the CSSC’s recommendations related to their retail water systems.”

Palo Alto’s Water Distribution System Seismic Preparedness
With regards to the CSSC recommendations, Palo Alto has completed many assessments of its water supply and distribution system including corrosion inspection, seismic, capacity, supply, flow analysis, and vulnerability assessment studies:

- August 1986 – Tank Inspection Report; Villalobos & Associates
- December 1999 – Water Wells, Regional Storage and Distribution System Study; Carollo Engineers
- May 2000 – Long-Term Water Supply Study; Carollo Engineers
- December 2003 – CIP Phase I Improvement Pressure Surge Analysis; Flow Science
- June 2004 – Water System Security and Bioterrorism Threats (EPA Mandated Vulnerability Assessment and Emergency Response Plan); Utilities staff

The December 1999 Water Wells, Regional Storage and Distribution System Study identified critical reservoir, well, and pump station improvements in the distribution system that needed seismic and reliability improvements. The existing water pumping station facilities in the foothills have been rebuilt as part of the Phase I Water System Improvements Project. The pump stations have been rebuilt to the latest seismic standards. This project is in the final stages of construction and will be completed by June 2007.

Staff is currently pursuing the construction of the Emergency Water Supply and Storage Project to improve the seismic readiness of the City’s water distribution system. This project will provide Palo Alto with a stand-alone emergency water supply that will meet approximately 90% of the City’s winter demand for up to 30 days. This supply could be extended further with additional water conservation efforts by customers. In addition to these projects, staff has proceeded on the Seismic Water Tank Valve (WS-09000) project and the substitution of an existing 6” water main with a 10” water main to improve reliability and emergency service to the Hewlett sub-area off Los Trancos Woods Road and parts of Foothills Park.

Palo Alto has one intertie with East Palo Alto and two interties with Mountain View. Palo Alto has constructed two new interties with Stanford University over the past seven years. The City is currently planning a new intertie at the Mayfield development (Alma St. near San Antonio Ave.) with the City of Mountain View; furthermore, a new intertie is being designed by the Los Altos Hills County Fire District for Purissima Hills Water District and Palo Alto. This new water main
and intertie will be located near the entrance to Foothills Park. The construction of this new line
to improve fire protection and reliability is planned for fall 2007. Additional interties with
Purissima Hills Water District are also under discussion along Arastradero Road.

The Utilities Department has developed a Water Operations and Emergency Response Plan and
staff has identified Palo Alto’s critical customers as well the distribution system’s critical
facilities. This plan contains a comprehensive staffing and action plan that details how staff will
respond, evaluate, patrol and operate the water, gas and sanitary collection systems in the event
of an emergency. The plan will be updated to reflect new booster pump station operations that
were constructed as part of the Phase I Improvement Project later this year.

Regarding non-capital planning, the City has participated in a number of emergency response
planning workshops conducted at the San Jose Water Company premises, which included
participants from around the Bay Area. Staff also participated in a SFPUC survey of customers
to identify critical water supply connections to the SFPUC system. These critical turnouts
supply water to hospitals, City Emergency Operations Centers and other critical emergency
facilities. SFPUC is coordinating the selection of these critical turnouts with the State and
County Emergency Response Plans. SFPUC will prioritize the restoration of its pipeline systems
along with the State and County Emergency Response Plans.

Regarding identification of sensitive seismic areas and other hazards, Palo Alto participated in
BAWUA-sponsored seismic assessment several years ago and used BAWUA’s consultant, John
Eidinger, to conduct a seismic assessment of the Palo Alto system. This seismic study reinforced
the need for Palo Alto to have a stand-alone emergency water supply. The study pointed out the
need for Bay Area water retailers to have a self-sufficient emergency water supply system to
withstand a prolonged outage on the SFPUC pipelines due to an earthquake on either the
Hayward or San Andreas Faults. Staff has mapped the United States Geologic Survey (USGS) -
identified earthquake fault lines on the City’s GIS system. Also, the USGS liquefaction areas are
being added to the City’s GIS.

Council and the Utilities Advisory Commission (UAC) have been apprised of the seismic
vulnerability and operational capabilities of the Palo Alto water system through study sessions,
public outreach programs, neighborhood workshops, project websites and staff memos. The
UAC made extensive investigations into the water system emergency supply proposals and fully
supported the staff recommendations for the Emergency Water Supply and Storage Project. Palo
Alto’s City Council certified the EIR for the Phase II Emergency Water Supply and Storage
Projects in April 2007. Palo Alto also is dependent on the SFPUC for improvements to the
regional water system pipelines and desires to have the SFPUC Water System Improvement
Program completed on schedule.

Through its public processes with the Council and the UAC, the community has been informed
to expect water outages on the SFPUC system of up to 60 days due to large earthquakes in the
region. Staff has discussed that this vulnerability will exist until approximately 2016 when the
SFPUC WSIP is planned for completion. Staff has continued educating the public on this issue
by meeting with business organizations and neighborhood association leaders and presenting the
existing and proposed operations of the City’s Emergency Water Supply and Storage Program.
Staff encouraged public input into the types and locations of projects that were included in the Emergency Water Supply and Storage Project EIR. The City routinely informs customers regarding conservation efforts with the utility bill inserts. Palo Alto plans to implement 13 different water conservation programs over the next 25 years to maintain Palo Alto’s water consumption levels at or below 2004 consumption levels.

Palo Alto’s proposed Emergency Water Supply and Storage Project (WS-08002) helps the Palo Alto water distribution system increase the reliability of its distribution system and meet recommendations from the California Department of Health Services. These improvements also address CSSC’s recommendation for SFPUC’s retail agencies to be prepared for the possibility of water supply disruptions. Future Water CIP design proposals and development reviews will also consider any necessary “hardening” of existing water pipelines to identified critical facilities in Palo Alto.

**RESOURCE IMPACT**
The funding for WS-08002 will come from a combination of Water Fund reserves and future revenue bonds.

**POLICY IMPLICATIONS**
Improving the water distribution system reliability and emergency preparedness is consistent with existing City policies.

**ENVIRONMENTAL REVIEW**
Appropriate environmental review will and has taken place for the capital projects identified in this report.

**ATTACHMENTS**
B: Letter from Nell Soto, Chair of the Joint Legislative Audit Committee to Susan Leal, SFPUC General Manager and Art Jensen, BAWSCA General Manager dated February 13, 2007.

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