ORIGINATING SECTION: Integrated Planning
CONTACT: Sal Segura/Amparo Flores
AGENDA DATE: March 18, 2020
SUBJECT: Risk and Resilience Assessment: Findings

SUMMARY:

As part of Zone 7’s mission to provide a reliable supply of high-quality water, Zone 7 complies with regulations, manages risks to the water supply system, and prepares for emergency conditions. On October 23, 2018, America's Water Infrastructure Act (AWIA) was signed into law requiring community water systems serving more than 3,300 people to develop or update a Risk and Resilience Assessment (RRA) and an Emergency Response Plan (ERP). It specifies the elements that an RRA and ERP must address and establishes compliance deadlines for community water systems to the United States Environmental Protection Agency (EPA). Certification of the RRA must be completed online by March 31, 2020 and does not require submittal of documents. In the future, the EPA may audit district RRA’s to verify compliance with the rules. Also, water utilities are required to re-certify their RRA’s every five years. Regulations on how water systems will be required to demonstrate compliance in the future are still under development.

Zone 7 hired Kennedy Jenks to assist in completing the RRA, using a method based on the American Water Works Association (AWWA) J100-10 Risk Analysis and Management for Critical Asset Protection Standard for Risk and Resilience Management of Water and Wastewater Systems. Kennedy Jenks reviewed existing documents and conducted a series of collaborative and interactive workshops across the agency to collect pertinent data and information from relevant Zone 7 staff and contractors. Cybersecurity assessment was conducted by Nexinite, a subconsultant specializing in this area.

The RRA was conducted using a customized risk matrix that aligns with the agency’s mission and priorities. In the spirit of EPA’s RRA approach, risk is a function of threat likelihood (e.g., How likely is a large earthquake to occur?), the consequence of a threat impacting the asset (e.g., How severe would the damage or service disruption be if an earthquake affected a particular pipeline?), and the vulnerability condition of the asset (e.g., How old is the pipeline and would that make it more susceptible to earthquakes?). The analysis evaluated about 50 critical assets and quantified their relative risk levels. Risk was assessed using Kennedy Jenks’ Business Risk and Vulnerability Assessment (BRVA) tool.

The RRA found that the top three assets with the highest relative risks are (Figure 1) Del Valle Water Treatment Plant (DVWTP), 2) Patterson Pass Water Treatment Plant (PPWTP) and 3) Key Personnel. The main factors driving the prioritization of these three critical assets are related to the large impact these assets have on Zone 7’s core business if they are impacted and their
vulnerability condition. DVWTP and PPWTP are the two surface water treatment plants that produce most of Zone 7’s water. If these facilities are impacted, there will be significant impacts on Zone 7’s ability to meet its core mission of serving water to customers. The vulnerability of these assets is affected by the facilities’ age and the current need to make upgrades. It should be noted that the assessment was conducted based on a snapshot in time and Zone 7 has previously identified the need to make upgrades to DVWTP and PPWTP and is actively completing projects under the agency’s Capital Improvement Program to upgrade these facilities.

Key Personnel that are trained and well-versed in system operations are critical to Zone 7’s mission. Approximately 20% of operations positions are currently vacant and filling these vacancies has been a challenge across the Bay Area for several years. These vacancies impact Zone 7’s overall ability to operate the system optimally because resources are limited.

Kennedy Jenks also noted that Zone 7 workflow processes are strong. Exploring areas of potential improvement identified room for more documentation, as well as formalizing and integrating the existing Computerized Maintenance Management System (CMMS) with other processes, such as Asset Management Planning (AMP), to further optimize engineering, planning and operations practices.

Recommended improvements that can be applied across all assets include the following:

1. Increase synthesis between CMMS and AMP to improve asset performance management.
3. Increase proactive maintenance and record keeping.

In addition, Zone 7 will continue to fill vacant operations positions as soon as possible. In the meantime, it is also recommended to enhance cross-training to ensure that staffing needs are being managed.

The Emergency Response Plan (certification due September 30, 2020) must include strategies and resources to improve resilience, including physical security and cybersecurity; plans and procedures for responding to a natural hazard or malevolent act that threatens safe drinking water; actions and equipment to lessen the impact of a malevolent act or natural hazard including alternative water sources, relocating intakes and flood protection barriers; and strategies to detect malevolent acts or natural hazards that threaten the system. Zone 7 staff and Kennedy Jenks will proceed with the preparation of the ERP over the next few months to address findings from the RRA and will give another presentation to the Board before the ERP is certified in September 2020.

**FUNDING:**

No funding required

**RECOMMENDED ACTION:**

Information only
Figure 1. Summary of risk levels by asset.