

## **Appendix M. Lifeline Sector Coordination**

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# Technical Memorandum

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**To:** Overarching Risk Team, Water Supply Forum Resiliency Project

**From:** Dan Graves and Andrew Graham, HDR

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**Subject:** Task 103.1 – Lifeline Sector Coordination

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## Introduction

The lifeline services sector includes public agencies and private utilities that provide services essential to water utility operations. As part of the Water Supply Forum (Forum) Resiliency Project, the major utilities of the Forum identified water system vulnerabilities due to interdependencies between the water utility sector and lifeline sectors. Vulnerabilities include long restoration times of lifeline services due to restoration priorities and potential lack of resource availability.

This technical memorandum summarizes the information gathered by the utilities about lifeline sector interdependencies and coordination activities, and offers suggestions for places where greater lifeline sector coordination could improve resiliency to regional risk events. The Forum also collected contact information for the lifeline sectors as a part of this task.

## Methods

HDR and the Forum identified lifeline sectors necessary for water utility operations, focusing on power generation and transmission, diesel fuel supplies, and transportation infrastructure. HDR provided questions to guide discussions between the utilities and lifeline sectors; these questions addressed topics such as water utility prioritization in lifeline restoration, current coordination activities between water utilities and other lifeline sectors, and opportunities for further engagement between the utilities and the lifeline sector. Utilities on the overarching risk team contacted organizations representing each of the lifeline sectors to gather this information.

## Lifeline Sectors

Each lifeline sector has unique considerations in terms of jurisdictional boundaries and the ability to coordinate and prioritize local customers or users.

### *Electricity*

Water utilities require power to carry out operations such as water treatment, maintenance, and customer services. They maintain emergency generators for short-duration backup purposes, but rapid restoration of normal power will be a high priority following an emergency event. There are multiple power utilities throughout the Forum region, both public and private.

### Seattle

The primary provider of power in the Seattle Public Utilities (SPU) water service area is Seattle City Light (SCL). SPU and SCL maintain regular business communications, including monthly meetings of emergency staff as part of the City-wide disaster management coordination groups. Emergency issues that concern both utilities are escalated individually to the Department Operating Centers, and jointly to the Emergency Operations Center if issues are beyond the scope of the SPU and SCL departmental obligation. SCL considers SPU's water needs in the same context as other critical needs, such as medical and shelter facilities.<sup>1</sup>

Areas served by SPU outside the SCL service area are served by a private power utility: Puget Sound Energy (PSE). Some of SPU's sites are listed on PSE's critical facilities restoration process, which depends on whether the facility has backup power. SPU could benefit from maintaining communication regarding PSE's designated critical facilities and coordination with PSE to ensure as many critical facilities are covered as possible.

### Tacoma

Tacoma Power is the primary provider of power in the Tacoma region. Tacoma Public Utilities (TPU) created an emergency management program to organize the three divisions of TPU (Tacoma Power, Tacoma Water, and Tacoma Rail) to work as one organization during emergencies. The emergency management program includes an emergency management coordination group, which holds monthly meetings to coordinate emergency response plans between the three divisions. Restoration of power service to water and wastewater facilities is TPU's second post-incident priority behind supporting life safety operations such as firefighters, police, emergency operations centers, and critical public safety facilities (e.g. hospitals and nursing homes).

Some of Tacoma's service area receives power from PSE; Tacoma Water works directly with PSE's operations department and business continuity departments to ensure Tacoma Water facilities are listed on the critical facilities restoration plan.

### Everett

The Everett Public Works (EPW) Department water service area receives power from Snohomish County Public Utility District No. 1 (SnoPUD). SnoPUD maintains a power restoration policy, which dictates priority of restoration following a severe event. Critical services, which include water, are second on their priority restoration list behind high voltage transmission facilities.

The Everett Water Filter plant is located near the Jackson Hydroelectric Power Plant; the power plant is likely to be a priority facility to be restored, improving the likelihood that the water filter plant will have power restored quickly as well.

### Cascade Water Alliance

The Cascade Water Alliance does not operate regional water supply facilities requiring electrical power (except Lake Tapps, which does not yet serve as a regional source). However, its member cities and districts have local facilities that require power. Energy in the Cascade service area is provided by PSE. Water treatment plants that supply Cascade are dependent on SCL transmission lines and PSE power distribution through those lines. PSE does not maintain a set restoration priority list; priorities depend on the nature of the event. The focus is typically on transmission lines, substations, and local circuits, and does not put any single agency consistently in top priority. PSE keeps updated emergency contacts for major customers, which can be coordinated through the business continuity department.

### **Fuel Supply**

Utilities require fuel for vehicles to make repairs and operate their systems, as well as for backup generators at pump stations, filtration plants and other critical facilities. Therefore fuel supplies will be a critical need following a major emergency event. The Forum utilities can receive emergency fuel aid from the State Department of Commerce (DOC) through a process described in the State's ESF-12 energy plan. The State will provide fuel supplies regionally, and local distribution is the responsibility of county and local governments. The Forum should clearly understand DOC's

regional distribution protocol, and potentially develop a Forum coordination plan for priority fuel distribution throughout the region.

The Washington Department of Transportation (WSDOT) has fuel at maintenance yards, which are regularly used by state police, DNR, and other agencies. However, it is not kept at 100% supply for emergency purposes.

### Seattle

Most liquid fuels are supplied to the region via pipelines and trucking. SPU has explored fuel supply-chains sourced from east of Washington State. Fuel operations for fleet, diesel pumps, and generators are locally managed by Seattle's Fleets and Facilities (FAS) department. FAS is currently developing an operational plan.

### Tacoma

TPU Fleet Services is responsible for regional fuel supplies. TPU Fleet Services assumes they will need to be self-reliant for a minimum of 7 days following a catastrophic event before fuel from the State DOC reaches the region. Tacoma Water is working on a plan to add fuel tanks and bladders on-site at the TPU campus for emergency fuel operations. Emergency fuel delivery from TPU Fleet Services is based on restoration priority; high priority equipment and generators will receive fuel first.

### Everett

Everett maintains a three-day fuel supply at the water filter plant. Currently, Everett does not have an emergency fuel supply plan, but will be developing one in the near future.

### Cascade

Cascade did not provide utility-specific information regarding fuel supply in an emergency incident. Cascade does not operate regional water supply facilities requiring backup fuel supplies. Its member cities and districts do operate local facilities requiring fuel during emergencies.

## **Transportation Infrastructure**

Transportation infrastructure is the primary lifeline by which staff and resources (e.g. fuel, treatment chemicals) would reach utility facilities for post-incident activities. Transportation infrastructure is managed at multiple levels from municipal (local) up to federal.

The Washington Department of Transportation (WSDOT) has infrastructure jurisdiction throughout the region; they maintain their own list of infrastructure restoration priorities, which includes regional highways I-5, I-405, and I-90. If needed, WSDOT can make mutual aid requests from the Emergency Management Assistance Contract, the Pacific Northwest Emergency Management Agreement, and the Regional Resiliency Assessment Program. They have a post event damage assessment protocol that determines which bridges are passable and which bridges need restoration.

The Puget Sound Regional Council developed the Transportation Recovery Annex<sup>ii</sup>, which is a document that describes region-wide transportation coordination protocols during a catastrophic event in the Puget Sound region. This document is the primary coordination tool of route prioritization during a catastrophic event.<sup>iii</sup>

### Seattle

SPU holds regular monthly planning and coordination meetings with the Seattle Department of Transportation (SDOT). Emergency conditions that concern both agencies are jointly escalated to the EOC. SDOT will address transportation infrastructure restoration needs with respect to SPU in the City-wide context; there is no distinct priority given to infrastructure serving SPU.

### Tacoma

Tacoma receives transportation infrastructure information from local, regional, and state agencies. During severe incidents, they receive outage maps through the Emergency Coordination Center and the Emergency Operations Center, depending on the jurisdiction of incident.

Tacoma Water is currently working with the U.S. Department of Homeland Security (DHS) to define and map critical water and wastewater facilities relative to crucial road arteries, bridges, ports, and railways. This project will help identify priority transport routes and facilities that would likely be utilized in a CSZ-earthquake response, as well as determine the capacity of the most viable routes.

### Everett

Snohomish County is the primary local jurisdiction of transportation infrastructure. The County uses Hazards U.S. data, managed by the State Department of Natural Resources, to analyze potential regional earthquake impacts. The website has highly detailed information about infrastructure damage expected from multiple earthquake scenarios. There is currently no prioritization policy to determine which bridges will be restored first, through this is expected to change soon. The EPW Streets Department is another local transportation infrastructure agency.

### Cascade

Bellevue will work with WSDOT to facilitate better mutual understanding of lifeline transportation routes relative to critical water utility facilities; Bellevue will receive lifeline route maps and will send a map of regional water treatment plants so that WSDOT may consider those critical facilities in their restoration plans. All Forum utilities could benefit from this type of coordination. King County and Pierce County are other local agencies that have jurisdiction over transportation infrastructure.

## **Conclusion**

Each lifeline sector has its own set of priorities and operational restoration protocols. In regions where lifeline operations plans have not been developed or are currently being developed, the utilities should engage in the process to ensure the lifeline sectors consider water utilities in developing restoration priorities. An understanding of where water utility infrastructure fits in the spectrum of lifeline restoration priorities can help inform utility in-house disaster preparation.

For large scale operations such as regional fuel deliveries from the State DOC, the Forum has room to coordinate amongst themselves to areas that need it the most in a post-event situation. The information about other lifelines presented in this memorandum can help inform where fuel distribution would be best served and which lifelines will be available to facilitate that effort.

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<sup>i</sup> Worcester, Ned, email to McMeen, Chris et. al., March 1, 2018

<sup>ii</sup> <https://mil.wa.gov/uploads/pdf/PLANS/transportationrecoveryannexnew.pdf>

<sup>iii</sup> Kaiser, Jeremy, “From Tacoma Water’s Perspective,” email to Graham, Andrew, March 28, 2018