

OREGON RESILIENCE CASE STUDY

BUSINESS CONTINUITY PLANNING: FACILITIES

A Business Continuity Plan (BCP) ensures an individual organization can continue to perform its **essential functions**, provide **essential services**, and deliver **core capabilities** during a disruption to normal operations.

Oregon utilities have implemented a number of BCP actions related to their facilities.

Blachly-Lane Electric Cooperative

Blachly-Lane discovered that its 1965 headquarters building would not sustain a 5.0 earthquake – let alone a possible 9.0 Cascadia Subduction Zone quake. The utility looked at multiple options, including doing nothing or leveling the existing building and starting over. The best course was to remodel the building and reinforce its concrete masonry to withstand a major earthquake, including tying in struts and trusses, and reinforcing the roof.

The utility also built an addition to the headquarters building to support essential services. The now 10,000-square foot facility includes kitchen facilities and a large multipurpose room that could run operations or house cots for long-term stays. The addition also includes a backup electricity generator with a 2,000 gallon propane tank. Propane was deemed the best option for running the generator after considering alternate fuels. For example, natural gas lines do not run near the facility, and may not be functional after an emergency.

Blachly-Lane estimates that the generator could run nonstop for 10-12 days. However, in the event of a large emergency like a Cascadia earthquake, the utility would conserve as much propane for the generator as possible – especially through the first three days as the team takes stock of the damage and challenges, and then calculates how long they could or will need to run the generator.

The project's budget totaled about \$5.5 million. Construction started in March 2017, and was completed in 2018.



A rendering of Blachly-Lane's headquarters addition.

Emerald People's Utility District

Emerald PUD has completed an initial structural analysis on its headquarters building, and will conduct additional analysis to help identify improvements or additions needed to withstand a serious emergency like a Cascadia Subduction Zone earthquake.

The facility has two back-up generators – one serving the whole facility, and a second for specific circuits. The generators run on diesel, and are expected to last 2-3 days. The site has an additional fuel tank, normally used for the PUD's fleet of trucks, which could also be tapped for generator use.

On site, Emerald PUD has 21 cots with blankets and pillows in case of an emergency. Personal supplies like toothpaste and toothbrushes are also available, as is drinking water. There are two barbecues on site that could be used to cook food.

In addition to completing a more detailed structural analysis of its headquarters, Emerald PUD is also reviewing the likelihood that access to their building could be compromised after a large quake, and whether or not it will need a second site available as a back-up. The utility will also complete analysis on its infrastructure, like substations and transformers, to test their viability after an emergency.

Emerald PUD is working on additions to its stored supplies, including protein bars, dry rations, and MREs. The utility is also working with an electrician to upgrade electric circuits so clothes washers and dryers can be installed.

McMinnville Water and Light

McMinnville installed a diesel generator at its headquarters in 2017. In the event of a large emergency like a Cascadia quake, the generator would help keep operations running. The utility also owns its own fuel truck, which holds up to 2,000 gallons of diesel and 250 gallons of gasoline. They keep the tank at least half full at all times in case of emergency.

McMinnville facilities are also prepped with stockpiled food for emergencies. The headquarters is close to the South Yamhill River, so the utility has portable filters to gain water access.

The utility is also working on dispersing materials to different sites around the service area, especially to areas outside the immediate city where crossing a bridge may be impossible.

McMinnville would like to build its own fuel facility at its headquarters to provide diesel for its generators. The utility estimates the cost would be up to \$1.5 million, and could keep operations running for up to six months. Ideally, the utility could use the fuel until it is drawn down by half, and then refill on a rolling basis.

The utility is also planning to have an engineer complete a seismic assessment on all buildings, including headquarters, substations, reservoirs, treatment plant, and others. The estimated budget for the assessments is \$80,000. Once the assessment is complete, McMinnville will prioritize actions to protect buildings – or identify which buildings they assume will be unusable after an event like an earthquake. The



McMinnville's generator will help keep operations running after an emergency.

utility also has two dams; one is rated to a 7.5 earthquake, while the other is not rated. If they have to retrofit, it would be a large project done over time.

McMinnville is looking into having engineering staff complete Applied Technology Council (ATC) 20 Post-earthquake Safety Evaluation of Buildings training, so staff can assess whether or not a building is safe to enter after an emergency.

McMinnville has also budgeted to build a new steel building at the service reservoir, which can act as an alternate operations center. The utility is getting close to ordering the building, and hopes to have it completed by the end of 2018.

Tillamook People's Utility District

Tillamook PUD hired a consulting firm to complete an Enterprise Risk Assessment to help the utility assess its current environment and identify areas of concern. With the assessment, Tillamook was also able to collect and record some of the institutional knowledge held by several 30-year employees. The lessons learned were incorporated into a 1-3 year Strategic Plan, which includes action items.

One action item is to rebuild substations and replace transformers with resiliency in mind. In addition to meeting Tillamook's unique load needs, design and construction will focus on seismic strength, as well as the ability to withstand location-specific challenges, such as wind storms and coastal salt air. The bus work for the transformers will be more flexible rather than rigid, and associated buildings with substations will have a modular design.

Tillamook PUD has already replaced one transformer, and is looking to replace four more over the next four years. Priority was given based on the current load of area transformers, as well as the condition of the transformers. For example, if a transformer shows gases collecting within the infrastructure's oil, it's an indication that there's arcing inside the transformer. The utility also takes into account future load planning and transformers that serve critical customers, such as medical and emergency response.

Tillamook's headquarters has 5.52 kW of solar onsite, which can work independently from the grid to produce power after an emergency.

The utility is also completing an addition on its headquarters to expand operations. It will also have a generator, and will be built to seismic standards. The project will go out to bid in 2018, with estimated completion by 2020.

Central Lincoln People's Utility District

In 2013, the Central Lincoln Board of Directors hired a new general manager and specified disaster preparedness as one of their priorities. That same year, the Oregon Department of Geology and Mineral Industries (DOGAMI) completed mapping of the tsunami inundation zone for the entire Oregon coast. The



Tillamook PUD's headquarters has solar on site.

DOGAMI maps brought an awareness of the natural hazard risks to coastal communities and raised concerns within the utility regarding the location of its business and operations centers.

As a result, Central Lincoln hired an outside party to conduct a high-level assessment of its business offices, headquarters building and operations centers and to subsequently develop a Facilities Plan. Having an outside party complete the evaluation provided the utility with an unemotional and unbiased view of its facilities. The purpose of the Facilities Plan was to inform long-term financial planning and prioritize next steps based on identified risks including an earthquake/tsunami event.

Each facility was reviewed for its proximity to the tsunami inundation zone, age and condition of the building, operational functions and services and geographic distribution of customers served. DOGAMI maps were used to determine the facility's proximity to the tsunami inundation zone. The building construction date was used to determine if the facility was constructed using state seismic design requirements. Customer service data, including the number of calls, walk-in customers and transactions completed was used to understand the customer service profile for each business office. All data used in the review process was either in-house data or information readily available online.



CLPUD opened its new operations center in 2017.

In April 2014, the Facilities Plan was presented to the Board and outlined the overall status of Central Lincoln's business and operations centers. It provided recommendations for new construction, seismic retrofitting and closure of facilities based on the geographic distribution of customers, proximity of alternative locations, growth assumptions, service efficiencies, cost effectiveness and mitigation of risks including cybersecurity and the occurrence of an earthquake/tsunami event. The Facilities Plan has served as an important guidance document as management strives to ensure a safe work environment, create operational efficiencies and provide customers with the services they want.

As recommended in the Facilities Plan, Central Lincoln closed three of its five satellite offices. Two offices were located in the tsunami inundation zone and another had staffing and safety issues. The timing of office closures coincided with staff retirements or natural attrition and no jobs were lost in the process. In each case there were secondary reasons for the office closures, including a location that was in close proximity to another office and, a low volume of customers - primarily due to efficiencies created by the AMI and new communications systems. The two remaining satellite offices are both co-located with an operations center and leverage shared systems including the fiber and communications network. As Central Lincoln has closed offices, it has sought new ways to serve its customer-owners and now offers more online pay options, an enhanced phone system and extended office hours.

The Facilities Plan included a recommendation that geotechnical and seismic analysis be completed on the headquarters facility given its primary role in utility operations. The analysis was completed through a series of steps. A geotechnical survey was performed in 2014, a seismic evaluation in 2015, and a secondary review and cost estimate of seismic retrofits in 2017. Considering that the building is oversized for its current use and the relatively high cost of seismic retrofits, management is currently exploring options including new construction and co-locating headquarters with an existing operations center.

Another recommendation of the Facilities Plan was to replace Central Lincoln’s primary operations center. The operations center was constructed more than 60 years ago, had outlived its useful life and was located in the tsunami inundation zone. The facility provided operational support for the utility’s entire system and was critical to on-going operations. In 2015, Central Lincoln began the process to sell bonds, purchase land and construct a new operations center. Construction of the new operations center was completed in 2017. The new primary operations center is located outside the tsunami inundation zone and meets the seismic standards for an essential facility.

The Board also authorized the remodel and seismic retrofit of the utility’s secondary operations facility. The facility, which is located outside the tsunami inundation zone, but does not meet seismic standards, will be retrofitted so that employees may safely exit the building in the event of a major earthquake. The third and smallest of Central Lincoln’s operations centers, is located on the edge of the tsunami inundation zone and options for this facility are being explored.

The Facilities Plan reflects Central Lincoln’s everyday practice of prioritizing employee safety first and protecting utility assets. Retrofitting work spaces so that employees may safely exit in case of an earthquake and abandoning work spaces that are located within the tsunami inundation zone to protect assets are in keeping with the utility’s priorities