



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Mital, Schlossberg, Helgeson, Brown and Carlson  
FROM: Rod Price, Chief Engineering & Operating Officer; Jeannine Parisi, Customer Relationship Manager  
DATE: January 24, 2020  
SUBJECT: 2020 Eugene/Springfield Natural Hazard Mitigation Plan  
OBJECTIVE: Board Action

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## **Issue**

The Federal Emergency Management Agency (FEMA) requires state, tribal, and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including grant funding for mitigation projects. The current Eugene/Springfield Natural Hazard Mitigation Plan (NHMP) expires this month. Participating agencies have updated the NHMP according to FEMA requirements and to reflect current mitigation activities planned.

## **Background**

The NHMP is updated every five years. In general, the plan identifies and prioritizes actions for risk reduction with the intent of building partnerships to reduce the physical and economic losses caused by natural disasters. There are new FEMA requirements associated with the new plan. First, special districts, including EWEB, Springfield Utility Board, and Rainbow Water District, are required to submit a condensed version of the plan as an ‘Annex’ to the community’s overarching NHMP (aka base plan). Second, elected bodies of all jurisdictions covered by the plan, including Special District Boards, are required to adopt the plan once it has gone through the State and Federal review and comment periods. For the EWEB Board of Commissioners, this would include the EWEB Annex, as well as the first several chapters of the base plan covering community hazard vulnerability assessments, the plan development process, and public outreach strategies. Draft versions of these documents were provided for EWEB Board review in June 2019.

## **Discussion**

The draft 2020 NHMP was submitted to the State of Oregon Office of Emergency Management for its review in September 2019. The plan was returned to the City with feedback on two issues relevant to EWEB:

- 1) If the special district rated a hazard differently than was rated in the base plan, explain the different categorization.
- 2) Describe how the actions listed in the plan are cross-referenced/reinforced by other relevant policies and plans listed in the Annex.

In response, Management updated EWEB's annex as included in Attachment 1. Related to Table B.4, language was included explaining why EWEB considered geomagnetic disturbances a relative low risk to our assets/customers compared to other natural hazards. Additionally, the following language was added to respond to feedback regarding policy-level commitments to making progress towards the NHMP actions:

*Each year, the EWEB's elected Board of Commissioners reviews and adopts the ten-year capital improvement plans for the water and electric utility. Because resiliency is a strategic priority for the utility, the mitigation actions described in the Natural Hazard Mitigation Plan are also reflected in the capital improvement plans. Over the course of the next NHMP five year period, EWEB plans \$204M in electric capital projects and \$95M in water system upgrades. Annual Board review and adoption of the capital improvement plans ensures that mitigation items have both policy-level and financial commitments for implementation, and affords a mechanism to explicitly track project progress or delays in a public meeting setting. Once adopted, EWEB's NHMP priority actions can be included as an attachment to the capital improvement plans to further reinforce integration of the plans.*

The City submitted the updated NHMP to FEMA and made it available for review on-line at [www.eugene-or.gov/681/Emergency-Plans](http://www.eugene-or.gov/681/Emergency-Plans)

### **Recommendation**

On January 13, 2020, FEMA notified the State Office of Emergency Management of its intent to approve the plan as submitted pending formal adoption by participating agencies (see Attachment 2). As noted in its letter, approval of the plan is contingent upon official adoption of the participating agencies, therefore EWEB Board adoption is requested.

In adopting the plan, the Board is committing to working on the mitigation actions described in the EWEB Annex. However, there are no penalties associated with delaying, changing or otherwise not completing any of the listed actions.

### **Requested Board Action**

Move to adopt the 2020 Eugene-Springfield Area Multi-Jurisdictional Natural Hazard Mitigation Plan and direct Management to provide documentation of EWEB Board action as required for FEMA plan approval.

# A Eugene Water & Electric Board

## NHMP Project Team Member:

Jeannine Parisi, Customer Relations Manager

## A.1 Jurisdictional Profile

### A.1.1 Introduction

The Eugene Water & Electric Board (EWEB) is the largest publicly owned electric and water utility in Oregon. The City of Eugene (the City) commenced utility operations in 1908 with the purchase of a privately-owned water system. In 1911, upon completion of the City's first municipal hydroelectric power plant, the City organized the Eugene Water Board to operate the City's electric and water utilities. The name of the Eugene Water Board was changed to the Eugene Water & Electric Board in 1949.

EWEB is chartered by the City and supplies electric and water service within the city limits of Eugene and to certain areas outside the city limits. Employing about 500 people, EWEB operates as a primary government, and is not considered a component unit of the City. EWEB is governed by a five-member Board of Commissioners who are elected by voters residing in the City. The Board is responsible for the adoption of this plan and funding for priority activities. The General Manager will oversee plan implementation

- **Population served:** 168,916 (2017 estimate, U.S. Census Bureau)
- **Land area served:** 236 square miles
- **Land area owned:** 44.15 square miles

This annex notes EWEB specific variances from the Eugene-Springfield Area NHMP base plan (Sections 1-4, 6). Variances arise due to differing risks faced by EWEB compared to the Cities of Eugene and Springfield. The different risks are due to utility specific regulations, infrastructure, and locations. Unless explicitly expressed by this annex, EWEB complies with the 2020 NHMP. Public outreach activities are located in Appendix B.

**A.1.2 Electric System**

The Electric System supplies service to 93,000 residential, commercial, and industrial customers within the City of Eugene and areas along the McKenzie River between the cities of Walterville and Vida, where two of EWEB’s hydro-power plants are located.

Power delivered to customers is supplied by the Bonneville Power Administration (BPA) via EWEB-owned generation resources, other contracted resources, and purchases from the wholesale energy markets. EWEB’s power supply sources are primarily hydro-power, but also include wind, biomass, and solar. The electric utility’s 2019 operating budget is \$212 million. The budget for capital improvements is \$37 million and the budget for debt service is \$16 million.

- **Total Electric System Service Area:** 236 square miles
- **Transmission and distribution lines:** 1,300 miles
- **Substations:** 38
- **Utility-owned hydroelectric facilities:** 4

Electric System operating assets historical costs<sup>1</sup> are listed below (Table A-1). A new operating license for the Carmen-Smith Hydroelectric Project was issued in May 2019. Capital improvements at this facility under the new licensing requirements are projected to cost \$116 million. The insured value of all hydro-electric production facilities, which approximates replacement value, is over \$320 million as of March 2019.

The estimated values of major electric assets are listed in below.

<b>Table A-1 Historical Cost</b>	
<b>Major Electric Asset</b>	<b>Historical Cost (As of Dec 2018)</b>
Land	\$8,969,999
International Paper Biomass (Turbine #4)	\$10,363,488
Foote Creek <sup>2</sup> Wind Farm	\$11,789,767
Hydro Production <sup>3</sup>	\$162,579,170
Transmission	\$84,785,666
Distribution	\$313,808,256

<sup>1</sup> Cost when the asset was first placed in service and capital improvement costs to that asset over time.

<sup>2</sup> Windfarm located in Carbon County, Wyoming, co-owned with Pacific Power Corp.

<sup>3</sup> Includes \$29 million for the Stone Creek Hydroelectric project located on Clackamas River, Oregon.

General Plant <sup>4</sup>	\$158,027,521
Telecommunications	\$19,452,088
Completed Construction, not yet classified	\$16,979,283
Construction Work in Progress	\$16,972,396
<b>TOTAL:</b>	<b>\$803,727,634</b>

Source: EWEB

**Current and Anticipated Service Trends**

Studies commissioned by the City of Eugene estimate the area’s population will grow by 34,000 people by 2031, or by an average annual rate of 1.4 percent. However, unless a large industrial facility locates in our service territory, electric consumption trends are expected to stay relatively flat, with most new customers served through existing facilities and energy resources. This is due to higher energy efficient buildings and equipment, use of natural gas for heating and industrial uses, and the on-going success of utility energy conservation programs.

**A.1.3 Water System**

EWEB provides treated drinking water to 61,000 residential, commercial, industrial, and public sector customers within its Eugene service territory. EWEB also supplies wholesale water to the River Road and Santa Clara water districts in unincorporated North Eugene and has wholesale water contracts with the City of Veneta and the Willamette Water Company.

The water utility maintains three water rights for drinking water at a single point of delivery on the McKenzie River. EWEB efforts to diversify water supply sources include a groundwater permit issued in 2008 and a surface water registration and permit issued on the Willamette River. Water permits will not be certificated until a sufficient volume of water from these sources is distributed for municipal use.

Raw water is collected via two river intake structures located at Hayden Bridge in Springfield and delivered to a nearby treatment plant. The water treatment plant pre-treats, filters, and treats the raw water for consumption. Two large transmission lines in a seven-mile long corridor bring treated water to the Eugene city limits. From there, transmission and distribution pipelines deliver water to customers.

EWEB operates three primary baseline reservoirs to store water, and a number of smaller reservoirs at upper elevations. Pressure to deliver the water is controlled largely from the filtration plant which is capable of serving approximately 85 percent of EWEB

<sup>4</sup> Includes electric utility portion of fleet and administration/operational buildings.

consumers. A system of pumps and reservoirs serve EWEB’s remaining consumers. The Water System’s 2019 operating budget is \$20 million. The budget for capital improvements is \$15 million and the budget for debt service is \$5 million.

- Reservoirs: 23 (89 M gallons capacity)
- Pump stations: 27
- Water distribution system: 800 miles

The estimated value of major water utility assets, in historical cost and insured values (when value approximates replacement costs) is listed below (Table A-2).

<b>Major Water Utility Assets</b>	<b>Historical Cost (as of Dec 2018)</b>	<b>Insured Value (as of March 2019)</b>
Land	\$ 1,258,733	-
Hayden Bridge Treatment Plant	\$ 35,742,975	\$ 99,332,597
Source of Supply	\$ 24,411,213	-
Water Transmission & Distribution	\$ 145,416,693	-
Reservoirs/Pumping	\$38,653,795	\$ 74,279,546
General Plant	\$ 37,847,775	-
Completed Construction, net yet classified	\$ 6,418,961	-
Construction Work in Progress	\$ 6,551,690	-

Source EWEB.

**Current and Anticipated Service Trends**

Similar to the electric utility, water consumption remains nearly flat despite population growth. While annual usage is highly weather dependent, the growth trend is marginal over time due to efficiency standards in plumbing codes and changing irrigation practices. Additional wholesale water contracts to nearby small cities are technically feasible but not likely in the near future.

## A.2 Applicable Regulations, Plans

EWEB's elected Board of Commissioners annually reviews and adopts the ten-year capital improvement plans for the water and electric utility. Resiliency is a strategic priority for the utility, therefore the mitigation actions described in the Natural Hazard Mitigation Plan are reflected in the capital improvement plans. Over the next five years, EWEB has plans for \$204M in electric capital projects and \$95M in water system upgrades. Annual Board review and adoption of the capital improvement plans ensures that mitigation action items have both policy-level and financial commitments for implementation and affords a mechanism to explicitly track project progress or delays in a public meeting setting. Once adopted, EWEB's NHMP priority actions will be included as an attachment to the capital improvement plans to further reinforce integration of the plans.

- **Eugene City Charter Chapter X, Section 44:**  
Conveys authority to maintain and operate the electric and water utility to the Eugene Water & Electric Board.
- **Eugene City Code 2.175 – 2.212**  
Sets forth powers and duties of the Eugene Water & Electric Board.
- **2019 Electric and Water 10-Year Capital Improvement Plans**  
Describes routine capital work like pole and water main replacements, specific upgrades over \$1 million such as reservoir rebuilds, and large multi-year projects typically financed through bonds. The \$311 million electric and \$212 million water plans have a strategic focus on reliability and resiliency.
- **2018 – 2022 Water Management and Conservation Plan**  
Required submission to Oregon Water Resources Board that includes water curtailment response.
- **2016 Emergency Action Plans for Carmen-Smith Hydroelectric Project and Leaburg/Waltermville Power Canals**  
Provides guidance to EWEB staff and emergency response personnel to safeguard the lives and property of people living in close proximity to and downstream of EWEB hydroelectric facilities; required and approved by the Federal Energy Regulatory Commission.
- **2015 EWEB Water System Master Plan**  
Outlines long term planning options for resiliency, reliability and optimization of EWEB's water System.
- **2012 EWEB Emergency Water Supply Plan**  
Analyzes options for secondary drinking water supplies and outlines a path forward to provide provisional water to EWEB customers.

- **Mutual Aid Agreements for Electric Restoration Efforts**
  - Lane Mutual Aid Agreement (2017)
  - Western Region Mutual Assistance Agreement (2014)
  - EWEB, Rainbow Water District, and Springfield Utility Board Mutual Aid Agreement (2006)
  
- **NERC Emergency Operations Plans**

Specifies electric load shedding required under emergency conditions. Dictates communications with outside electrical supply entities and required restoration actions and coordination.

### A.3 Jurisdiction-Specific Natural Hazard Event History

Table A-3 lists past occurrences of natural hazards affecting EWEB over the past 15 years and the damage received to EWEB assets for each incident.

<b>Table A-3 Natural Hazard Events</b>			
<b>Type of Event</b>	<b>FEMA Disaster # (if applicable)</b>	<b>Date</b>	<b>Preliminary Damage Assessment</b>
Severe Winter Storm	TBD	February 25 – March 4, 2019	\$4.3M
Windstorm	N/A	April 7, 2017	
Winter Storm/Freezing Rain	DR-4296-OR	December 14 -17, 2016	\$4.2 M
Severe Winter Storm	DR-4258-OR	December 6 – 23, 2015	\$195,000
Severe Winter Storm	DR-4169-OR	February 6 – 14, 2014	\$1.9 M
Severe Winter Storm	DR-4055-OR	January 17-21, 2012	\$35,000
Severe Winter Storm		March 21-26, 2012	
Windstorm		March 13 - 16, 2011	
Severe Winter Storm		December 27 – 29, 2008	
Windstorm		February 2-4, 2006	
Windstorm	FEMA-1405-DR-OR	February 7, 2002	\$1.5 M

Source EWEB.

### A.4 Hazard Risk Ranking

Table A-4 presents the ranking of hazards of concern, using vulnerability multiplied by probability divided by capacity to calculate and prioritize total risk to Eugene Water and Electric Board (see Section 4.2.2, Components of Risk Analysis, for an explanation of the Risk Metrics). These are the identified hazards to EWEB and may vary from those listed in Section 1, Table 1-1.

<b>Table A-4 EWEB Risk Matrix</b>					
<b>Hazard</b>	<b>Vulnerability</b> High = 3 Moderate = 2 Low = 1	<b>Probability</b> High = 3 Moderate = 2 Low = 1	<b>Capacity</b> High Capacity = 3 Moderate = 2 Low = 1	<b>Risk Total</b> <1.5 = Low 1.5-2.9 = Moderate 3-4.5 = High >4.5 = Very High	<b>Risk</b>
Earthquake	3	2	1	6	Very High
Windstorm	3	3	2	4.5	High
Winter storm	3	3	2	4.5	High
Wildfire	2	3	2	3	High
Flood - Riverine	2	2	2	2	Moderate
Drought	1	3	2	1.5	Moderate
Geomagnetic Disturbance	1	2	2	1	Low
Landslide	1	2	2	1	Low
Volcano	1	1	3	.33	Low

Source EWEB.

As Table A-4 above indicates, EWEB’s risk ranking is nearly identical to the planning area. The one exception is geomagnetic disturbances, which ranked low in EWEB’s evaluation. As a local utility, EWEB manages relatively little electric transmission infrastructure, which is most sensitive to this phenomena therefore our asset vulnerability is comparatively small. Further, events of this nature are managed proactively by the Bonneville Power Administration which has protocols and actions EWEB would take to shed electric load in advance of a predicted event and

requirements EWEB would follow during an actual geomagnetic disturbance to limit damage to our systems.

### A.5 Evaluation of Recommended Action Items

Table A-5 lists the initiatives that make up the EWEB hazard mitigation plan. EWEB is the lead agency and funding source for these initiatives unless otherwise noted.

<b>New Assets</b>	<b>Existing Assets</b>	<b>Hazard Mitigated</b>	<b>Mitigation Action</b>	<b>Estimated Cost</b>	<b>Timeline</b>
	X	Earthquake, Geomagnetic disturbances	Seismic upgrades of critical facilities: Rebuild Currin Substation using IEEE <sup>5</sup> standards to reduce risk of interference with electrical equipment from geomagnetic disturbances.	\$750K <sup>6</sup> (substation)	2020-2021
X	X	Earthquake	Seismic upgrade of critical facilities: Changes to EWEB Roosevelt Operations Center (ROC) to remain operational after earthquake event; move EWEB dispatch into ROC from EWEB Headquarters and build new back-up control center in seismically sound building at Hayden Bridge.	\$3.5 M	2019-2025
	X	Earthquake	Seismically anchor transformers, and control building, and add flexible bus connections at nine substations.	\$1.2 M	2019-2027
X		Multi-Hazard (earthquake, flood-riverine, winter storms, windstorms, geomagnetic disturbances)	Seismic upgrade to critical facilities: New Holden Creek Substation built to seismic standards replacing Leaburg Substation on riverbank using IEEE standards; removes 17 miles overhead electric lines.	\$7.5M	2018-2020

<sup>5</sup> Institute of Electrical and Electronics Engineers (IEEE) 693

<sup>6</sup> Total project cost of Currin Substation Rebuild is estimated at \$7.5M. Only costs associated with seismic upgrade, estimated at 10% of new construction overall costs, are included.

**Table A-5 Hazard Mitigation Action Items**

New Assets	Existing Assets	Hazard Mitigated	Mitigation Action	Estimated Cost	Timeline
			Add second transformer for resiliency.		
X		Earthquake	Replace baseline reservoirs <sup>7</sup> with seismic-code facilities	\$10M per site	2023 (first reservoir)
X		Earthquake, Landslide	Use all-restraint water mains in areas prone to landslides	2 times cost of standard pipe	2030
X		Earthquake, Flood-Riverine	Replace gaseous chlorine at filtration plant with on-site liquid hypochlorite system with 90 days on-site storage	\$3.5M	2019
	X	HazMat	Change out mineral oil to non-toxic FR3 <sup>8</sup> in new transformers to reduce spill risk when poles fall or transformers fail, focusing on 427 upriver transformers.	Approx. \$800k/year	2030
X		Multi-Hazard (earthquake, wildfire, drought)	Establish micro-grids and emergency pumping and filtration systems at critical facilities for drinking water distribution and independent electric operation. Micro-grids at Howard Elementary School has been installed, and a 1 MW system at EWEB Roosevelt Operations Center are currently under development.	\$1M per site <sup>9</sup>	2018 - 2023
	X	Multi-Hazard (earthquake, wildfire, volcano, windstorm)	Test blackstart capabilities, load requirements, and transmission switching needs for Leaburg hydro-electric plant to power critical facilities in Eugene during major outages.	\$50,000	2019 - 2023

<sup>7</sup> EWEB has three ‘base’ elevation reservoirs that serve over 80% of our customers.

<sup>8</sup> FR3 fluid is a natural ester derived from renewable vegetable oils – providing improved fire safety, transformer life/loadability, and environmental benefits.

<sup>9</sup> Howard Elementary School installation supported in part by Oregon Department of Energy grant (\$300k).

**Table A-5 Hazard Mitigation Action Items**

New Assets	Existing Assets	Hazard Mitigated	Mitigation Action	Estimated Cost	Timeline
	X	Multi-Hazard (windstorm, winter storms)	Re-frame 4.3 miles of electric line and undergrounding 1.5 miles of line in 15 high outage areas.	\$2.7M <sup>10</sup>	2019-2020
X		Multi-Hazard (earthquake, wildfire, drought)	Develop emergency water distribution sites using wells at area schools/community centers – two sites completed, and three other sites are in design or construction.	\$200K per site	2018 - 2023
X		Multi-Hazard (earthquake, wildfire, drought)	Construct new water filtration plant on the Willamette River for secondary source of supply and treatment/delivery options for drinking water.	\$50M	2023-2030
X		Multi-Hazard (earthquake, wildfire, drought)	Construct and test mobile treatment trailer that can deliver potable water from sources like rivers or pools.	\$80,000	2020

Table A-6 below lists the action items contained in EWEB’s hazard mitigation plan and identifies the priority for each item based on probable benefits, funding availability and project timeline. It is not intended to act as a formal cost/benefit analysis.

**Table A-6 Mitigation Strategy Priority**

Mitigation Action Item	Hazards Mitigated	Costs	Benefits	Benefits Equal or Exceed Cost?	Grant Eligible ?	Can be funded under existing programs or budgets?	Priority
Rebuild/Seismic Upgrades to Currin Substation	Earthquake, GMDs	Low	Moderate	Yes	Yes	Yes	High

<sup>10</sup> \$1.5M of project funded via FEMA Public Assistance grant award (DR-4296) following 2016/17 winter storms.

**Table A-6 Mitigation Strategy Priority**

Mitigation Action Item	Hazards Mitigated	Costs	Benefits	Benefits Equal or Exceed Cost?	Grant Eligible ?	Can be funded under existing programs or budgets?	Priority
Seismic Upgrades to Critical Facilities: EWEB Operations and Dispatch	Earthquakes	Moderate	Moderate	Yes	Yes	Yes	Moderate
Anchor Substation Transformer	Earthquake	Moderate	Moderate	Yes	Yes	Yes	High
Replace Leaburg Substation w/New Holden Creek Substation	Earthquakes, Multi-hazard	Low	High	Yes	Yes	Yes	High
Rebuild/Rebuild Baseline Reservoirs	Earthquakes	Moderate	Moderate	Yes	Yes	Yes	Moderate
All-Restraint Water Mains	Earthquake, Landslide	Moderate	Moderate	Yes	Yes	Varies	Low
Build Hypochlorite System at Filtration Plant	HazMat, Earthquake, Riverine flood	Moderate	High	Yes	N/A	Yes	High
Replace Mineral Oil with FR3 in Transformers	Earthquakes, Multi-hazard	Low	Moderate	Yes	N/A	Yes	Low
Establish Micro-Grids @ Emergency Facilities	Multi-Hazard (Earthquake, Wildfire, Drought, HazMat Spill)	Moderate	Low	No	Varies	No	Low
Enable Localized Generation to Power Critical Facilities	Multi-Hazard (Earthquake, Wildfire, Volcano, Windstorm)	Moderate	Moderate	Yes	Varies	Yes	Moderate

**Table A-6 Mitigation Strategy Priority**

Mitigation Action Item	Hazards Mitigated	Costs	Benefits	Benefits Equal or Exceed Cost?	Grant Eligible ?	Can be funded under existing programs or budgets?	Priority
Undergrounding/Re-Framing Electric Distribution	Winter Storm, Windstorm	Low	High	Yes	Yes	Yes	High
Develop Emergency Water Distribution Sites	Multi-Hazard (Earthquake, Wildfire, Drought, HazMat Spill)	Low	Moderate	Yes	Yes	Yes	High
Develop Emergency Water Distribution Sites	Multi-Hazard (Winter Storm, windstorm, landslide)	Low	Moderate	Yes	Yes	Yes	High
Secondary Water Filtration Plant	Multi-Hazard (Earthquake, Wildfire, Drought, HazMat Spill)	High	High	Yes	No	No	Moderate
Mobile Water Treatment Trailer	Multi-Hazard (Earthquake, Wildfire, Drought, HazMat Spill)	Low	Moderate	Yes	Yes	Yes	High

### A.6 Future Needs

EWEB will be conducting a water system risk and resilience assessment in accordance with recent updates to Section 1433 of the Safe Drinking Water Act. This risk assessment of both natural disasters and bio-terrorist attacks is to be submitted to the Environmental Protection Agency by March 31, 2020.

Additional analysis is also planned around improving our ability to isolate and serve critical facilities using just our localized energy resources. Studies planned include modeling the load capabilities of additional generation supplies beyond EWEB hydro-electric facilities such as the University of Oregon natural gas plant and industrial co-

generation plants, and assessing what electric distribution system automation is needed to quickly shed load and redirect power to critical facilities.

As part of our focus on resiliency, the utility will be developing staff evacuation plans for flood/wildfire events and updating EWEB business continuity plans.

## **A.7 Additional Comments**

Since the adoption of the 2014 NHMP, EWEB has completed several initiatives to mitigate community risk to hazards of concern. Some of these were listed in the plan, while others were not included at the time. Action Item updates for the 2014 NHMP are in Appendix A. Some mitigation initiatives completed but not outlined in the 2014 NHMP include:

- Seismic upgrades of critical facilities: a \$3 million upgrade to the Hayden Bridge Filtration Plant was completed in 2017 and constructed the seismically-rated Holden Creek Substation.
- Back-up power at critical facilities: a \$1.0 million project to add back up power to the Hayden Bridge raw water intake system and treatment plan was completed in 2018. The back-up generation is sufficient to deliver 20 million gallons of water per day and has the fuel capacity to run 24- hours without re-fueling.
- Purchased property and completed preliminary design for construction of secondary water treatment plant on the Willamette River (\$2.5M).
- Installed seismic early warning systems at two hydro-electric plants to automate safety actions and reduce risk to life/property in partnership with the University of Oregon (\$25K).
- Provided approximately 15,000 three-gallon emergency water containers to EWEB customers at discounted price to use at emergency distribution sites/mobile trailers, with considerable outreach and education as part of the distribution process (approximately \$100k).
- Purchased and equipped three mobile water distribution trailers to provide emergency drinking water during outages (\$80,000 each). Two trailers were loaned to Salem/Keizer personnel to provide drinking water to residents during a multi-week water curtailment due to algal bloom in summer 2018.
- Completed two emergency water distribution well sites and hosted utility/community drills where residents could fill free water storage containers using distribution equipment and learn how to disinfect water for public use (October 2018 and May 2019). Next step is to create an operating manual so that non-utility personnel can set up and disperse water during emergencies enabling EWEB staff to focus on system repairs and service restoration. Our goal is to have another two sites up and running by the end of 2019.



**FEMA**

January 13, 2020

Mr. Joseph Murray  
State Hazard Mitigation Planner  
Oregon Military Department  
Office of Emergency Management  
P.O. Box 14370  
Salem, Oregon 97309

Dear Mr. Murray:

The Federal Emergency Management Agency (FEMA) Region 10 completed a pre-adoption review of the draft *Eugene-Springfield Area Multi-Jurisdictional Natural Hazards Mitigation Plan*. The attached Mitigation Plan Review Tool documents the Region's review and compliance with all required elements of 44 CFR Part 201.6, as well as identifies the jurisdictions participating in the planning process. This letter serves as Region 10's commitment to approve the plan upon receiving documentation of its adoption by participating jurisdictions.

Formal adoption documentation must be submitted to FEMA Region 10 by at least one jurisdiction within one calendar year of the date of this letter, or the entire plan must be updated and resubmitted for review. Once FEMA approves the plan, the jurisdictions are eligible to apply for FEMA Hazard Mitigation Assistance grants.

Please contact Jake Grabowsky, Oregon FIT Hazard Mitigation Community Planner, at (202) 856-1901 or [james.grabowsky@fema.dhs.gov](mailto:james.grabowsky@fema.dhs.gov) with any questions.

Sincerely,

  
x

Tamra Biasco  
Chief, Risk Analysis Branch  
Mitigation Division

JG