

# Lake Meridian Water District Plan Annex

## Introduction

Lake Meridian Water District (District) was formed in 1962 as King County Water District No. 111 to bring water service to the Lake Meridian area and along Kent-Kangley Road. The District Name was formally changed from “King County Water District No. 111” to “Lake Meridian Water District” in January 2019. The District serves primarily residential customers within the cities of Auburn and Kent, a portion of the City of Covington, and unincorporated King County as shown in Figure 1.

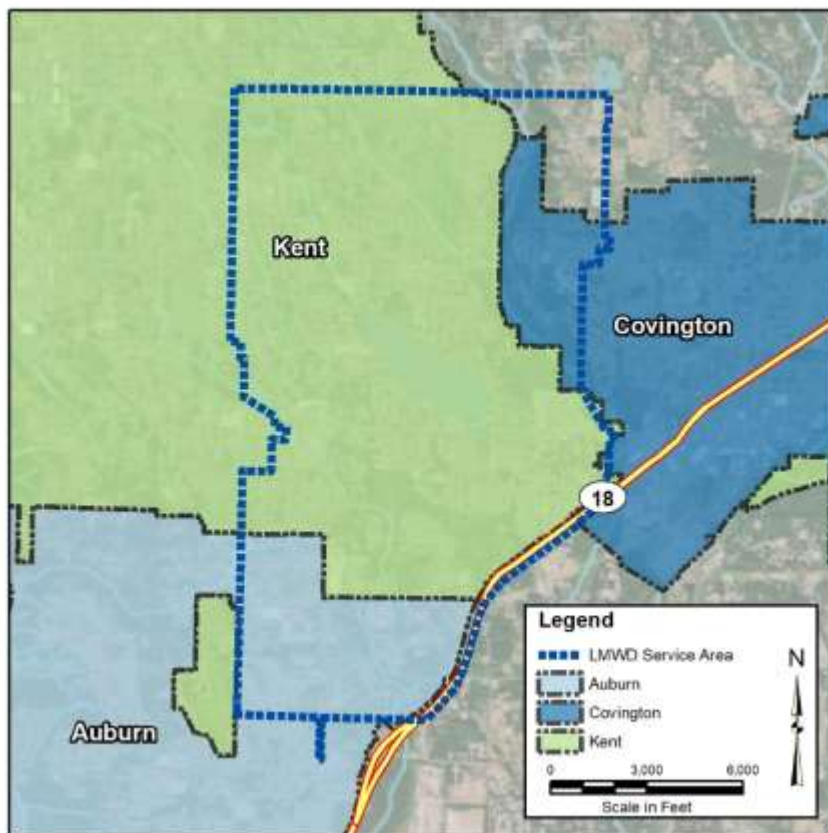


Figure 1: Vicinity Map of the District Service Area

Adjacent water purveyors, which bound the District’s service area, are Soos Creek Water & Sewer District to the north, the City of Kent to the west, Covington Water District to the east, and the City of Auburn to the south. The District is governed by a three-member Board of Commissioners, with day-to-day operations overseen by the General Manager. The Board will assume responsibility for the adoption and implementation of this plan. As of August 2019, the District currently has 10 full time employees performing day-to-day duties, including operations and maintenance of the water system, customer billing, construction inspection, and other utility-related duties. The District is funded through rates, general facility charges, and service connection charges.

The District’s primary sources of supply include local groundwater from four primary wells (Wells 3, 5, 6, and 9) as well as wholesale supply from Covington Water District (CWD) which receives a large portion of its water supply from the City of Tacoma. Table 1 summarizes the capacity of the District’s sources.

### District Profile

- **Population Served:**  
20,781 (2019 estimate)  
6,057 connections  
(August 2019)
- **Land Area Served:**  
4,542 Acres
- **Land Area Owned:**  
4.34 Acres
- **Value of Area Served:**  
\$2,704,516,994  
(includes Appraised Land Value and Improvements per King County Assessor Data)

### District Owned Infrastructure/ Equipment:

- 81 miles of water main
- 3 storage reservoirs
- 4 primary wells
- 2 transfer pumps
- 3 interties
- 2 emergency interties

**Table 1  
District Sources**

Source	Primary/Emergency	Capacity, gpm
Well 1	Emergency/Not in Use	300
Well 2	Emergency	300
Well 3	Primary	400
Well 4	Emergency	300
Well 5	Primary	275
Well 6	Primary	650
Well 9	Primary	800
Covington Water District Intertie	Primary	521-833 <sup>(1)</sup>
Soos Creek Water & Sewer District	Emergency	500
City of Auburn	Emergency	1,730
City of Tacoma	Emergency	833-972 <sup>(2)</sup>
City of Kent	Emergency	750

- (1) The District’s wholesale agreement with Covington Water District allows for purchase of 750,000 – 1,000,000 gpd from October 1 through May 31 and 1,000,000 – 1,200,000 gpd from June 1 through September 30.
- (2) The District’s agreement with Tacoma Public Utilities allows for 1,200,000 gpd average day use, 1,400,000 gpd peak day average use and 1,330,000 gpd for four day average peak use.

**Development Trends**

Lake Meridian Water District is not a land use planning authority and must respond to the growth approved by the jurisdictions in the area the District serves. In the last 5 years since the last Hazard Mitigation Plan update, the District has added approximately 260 new service connections. While the District is fairly developed, water service connections and total water produced is expected to increase at a modest rate as infill development and redevelopment occurs. The Water System Plan, which estimates future water system demands estimates an 8.00% increase in average day demand between 2019 and 2025. Additionally, the population is projected to increase from 20,781 in 2019 to 22,158 in 2025.

Lake Meridian Water District Point of Contact:

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## Jurisdiction Risk Summary

### Hazard Risk and Vulnerability Summary

HAZARD	HAZARD SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Avalanche</b>	N/A	N/A	It is not likely that an avalanche will affect the District.
<b>Earthquake</b>	<p>Information obtained from the Washington Geologic Information Portal indicate that the District could see shaking in the event of a Tacoma (potential for Magnitude 7.1) or Cascadia (potential for Magnitude 9.0) earthquake.</p> <p>The most recent earthquake that affected the District was the Nisqually Earthquake in 2001. The 6.8 magnitude earthquake was centered under Anderson Island in South Puget Sound. The District sustained damage to Well 2 but the well was not in use at the time.</p>	<p>The majority of the District's facilities are vulnerable to the effects of an earthquake. Earthquakes can cause water mains to pull apart and leak, AC main to rupture, and damage to pumps, rendering them non-operational. The reservoir and tank site is most vulnerable to earthquake as collapse of Tank 1100, originally constructed in the 1960s, and could damage the other tanks and operational building on site.</p>	<p>The impact of an earthquake would vary depending on what facility was damaged because of the seismic activity. The biggest impact would be if the storage facilities for the District were damaged. This would result in loss of pressure and fire flow in the system.</p>
<b>Tsunami</b>	N/A	N/A	It is not likely that a Tsunami will impact the District as it is outside the inundation area for a tsunami.
<b>Volcano</b>	<p>The major hazards caused by volcanic activity include ash and pumice fall, pyroclastic flows, lava flows and lahars/flooding.</p>	<p>Covington Water District's primary source of water is from Tacoma Public Utilities. Volcanic activity can produce ash falls and debris flows, which can lead to reduced water availability and increase turbidity, acidity, and metal concentrations.</p>	<p>The District is too far from any volcanos to be impacted by pyroclastic flows, lava flows. The biggest impact to the District would be on the water quality of TPU, which supplies Covington Water District. If the water supply from Covington Water District were impacted, the District would be dependent on its wells</p>

			and emergency interties with adjacent purveyors.
<b>Landslide</b>	Landslides are more likely to occur during periods of heavy rain or as a result of seismic activity.	The District has not experienced and documented landslides affecting their facilities and County data does not indicate any landslide hazard areas within the service area.	While unlikely in the District, landslides have the potential to damage water mains which could impact operations until repairs are made. The impact of a landslide would vary greatly depending on its location and severity.
<b>Wildfire</b>	Wildfires are unlikely to occur within the District Boundaries. However, wildfires can occur in the Green River Watershed, which supplies Tacoma Public Utilities who supplies a majority of the water for Covington Water District.	Covington Water District's primary source of water is from Tacoma Public Utilities. If a wildfire occurs in the Green River watershed, fire suppression chemical may accidentally enter the water supply.	If a wildfire were to occur in the Green River watershed, this would most likely impact water quality by reducing forest cover. Forest cover prevents erosion; its loss would allow additional runoff and sedimentation into the river and tributaries to the watershed. If the water supply from Covington Water District were impacted, the District is able to receive water from one of its emergency interties with an adjacent purveyor.
<b>Flood</b>	A small portion of the District's eastern service area adjacent to Soos Creek lies within the 100-year flood plain. Floods have the potential to cause power outages, erode roads and damage water mains.	Well 1 lies within the 100-year flood plain. The District only has one water main within the flood zone, on SE 256 <sup>th</sup> Street. In 1996, a flood eroded this roadway and damaged a 12-inch water main.	Loss of Well 1, which is located in the 100-year flood plain, is not likely to impact the District since it is not a primary well used by the District. Damage to the main on SE 256 <sup>th</sup> Street would cause approximately 200 properties to be without water until repairs could be made.
<b>Severe Weather</b>	Severe weather can include heavy rain, snow, and ice; drought; extreme heat and cold; and high winds. Extreme heat events are	Severe weather poses a significant risk to the daily operations of the District. Winter weather and severe storms can disrupt essential infrastructure that the District	It is possible that severe weather could have a significant impact on the District's ability to supply water to the system in the

	<p>expected to increase during coming decades.</p>	<p>relies on such as electrical utilities, telecommunications, and transportation networks.</p> <p>Well 5 is the only District well that has an emergency on site generator. The District owns one portable generator, which must be transported from the District storage facility to the Well site. Only Well 6 and Well 9 can be powered by this portable generator.</p>	<p>event of a widespread power or communication outage.</p> <p>Periods of high heat increase demands within the system. During these times, the District sources become more critical to meeting demands.</p> <p>While rare, extreme snow and ice conditions would have the biggest impact on the mobility of District staff and equipment to and from facilities.</p> <p>Depending on the severity of the weather event, the District may need to use one of its emergency interties in order to supply system demands.</p>
<p><b>Hazardous Materials Incident</b></p>	<p>Accidental spills or releases of contaminants can potentially impact groundwater supplies. Potential sources of spills and leaks include underground storage tanks, accidents, and poor disposal practices. Transportation routes are of concern because of the potential for hazardous materials spills from cargo vehicles. Also industrial and commercial operations in the District are potential locations for accidental spills and leaks.</p>	<p>Since the District gets a majority of its supply from wells, the groundwater supply is vulnerable to contamination in the event of a hazardous materials release.</p> <p>Additionally, District staff uses chemicals in its day-to-day operations. Proper training on safe handling, transport, and storage of these chemicals is crucial in preventing spills.</p>	<p>It is important that spills and leaks receive a quick and thorough response. A quick response can make the difference between a few cubic yards of contaminated material needing disposal and a massive groundwater cleanup effort costing millions of dollars. In the event of a major incident within the District, water quality monitoring would be required to ensure the groundwater supply is not contaminated. In the event of contamination, the District would be reliant on one of its emergency interties.</p>



<p><b>Health Incident</b></p>	<p>The District has a responsibility of providing clean, safe drinking water to the public. Facility security, wellhead protection and backflow prevention within the District is crucial to maintaining water quality. Health incidents can include outbreaks of certain disease such as influenza, norovirus, and <i>E. coli</i>.</p>	<p>Facilities most vulnerable to a health incident within the District include the storage reservoirs and the wells due to their ability to be exposed to contaminants. Connections not protected by backflow prevention, have the potential to introduce contaminants into the distribution system.</p>	<p>Impacts from a health incident on the District can be variable depending on the event. The most likely impact would be on water quality. In addition, spread of illness associated with contamination would impact consumer confidence.</p> <p>While unlikely, a widespread health incident could affect the District staff, threatening its ability to provide reliable service.</p>
<p><b>Terrorism</b></p>	<p>Acts of terrorism could affect the entire District.</p>	<p>It is very difficult to identify the possible scope and scale of such an event. The District has not been the victim of any terrorist attacks. The District does have security measures in place including site security fencing/barbed wire, intrusion alarms at the reservoir site, network protection on District computers, and automated alarm systems on the District's telemetry network.</p>	<p>District function could be significantly impacted for an extended period depending on the extent of the attack. A major terrorist incident within the District could cause damage, contamination, or loss of critical pipelines, storage facilities, or well sites severely affecting the ability of the District to supply water. Terrorism could also affect transportation networks and public utilities that the District requires for daily operations.</p>
<p><b>Civil Disturbance</b></p>	<p>Civil disturbances are most likely to occur in larger, urban areas. Civil disturbance has the potential to endanger the safety and well-being of the public as well as damage property. The majority of the District is residential which makes a civil disturbance unlikely. However,</p>	<p>Due to its accessibility to the public, the District office is vulnerable to civil disturbance. The District has recently increased the security at the office to protect the safety of the employees.</p>	<p>A civil disturbance would most likely impact the daily administrative tasks that take place at the District. There is also a risk that if a large act of civil disturbance were to take place, District infrastructure (such as fire hydrants) could be damaged. The impacts</p>

	because it is a public entity, there is a slight risk that a civil disturbance could affect the District.		of this would most likely be localized to where the incident was taking place.
<b>Cyber Incident</b>	While the District has had no cyber incidents in the past, cyber security issues are becoming more concerning as technology advances.	The District's computer network, security, and supervisory control and data acquisition (SCADA) system is vulnerable to a cyber incident. The District does have protection on computer networks.	A cyber incident could impact the daily administrative activities such as billing, work orders, and record keeping. Additionally, the operation of the water system could be affected as many controls and alarms within the District's system are controlled and monitored by the SCADA system.
<b>Dam Failure</b>	Lake Youngs, a reservoir owned by Seattle Public Utilities is located northeast of the District. Big Soos Creek runs through the eastern part of the District's service area and is within the inundation area for the Outlet Dam.	Well 1 and one water main along SE 256 <sup>th</sup> street is in the inundation area for Lake Youngs.	Loss of Well 1, which is located in the 100-year flood plain, is not likely to impact the District since it is not a primary well used by the District. Damage to the main on SE 256 <sup>th</sup> Street would cause approximately 200 properties to be without water until repairs could be made.

# Hazard and Asset Overview Map(s)

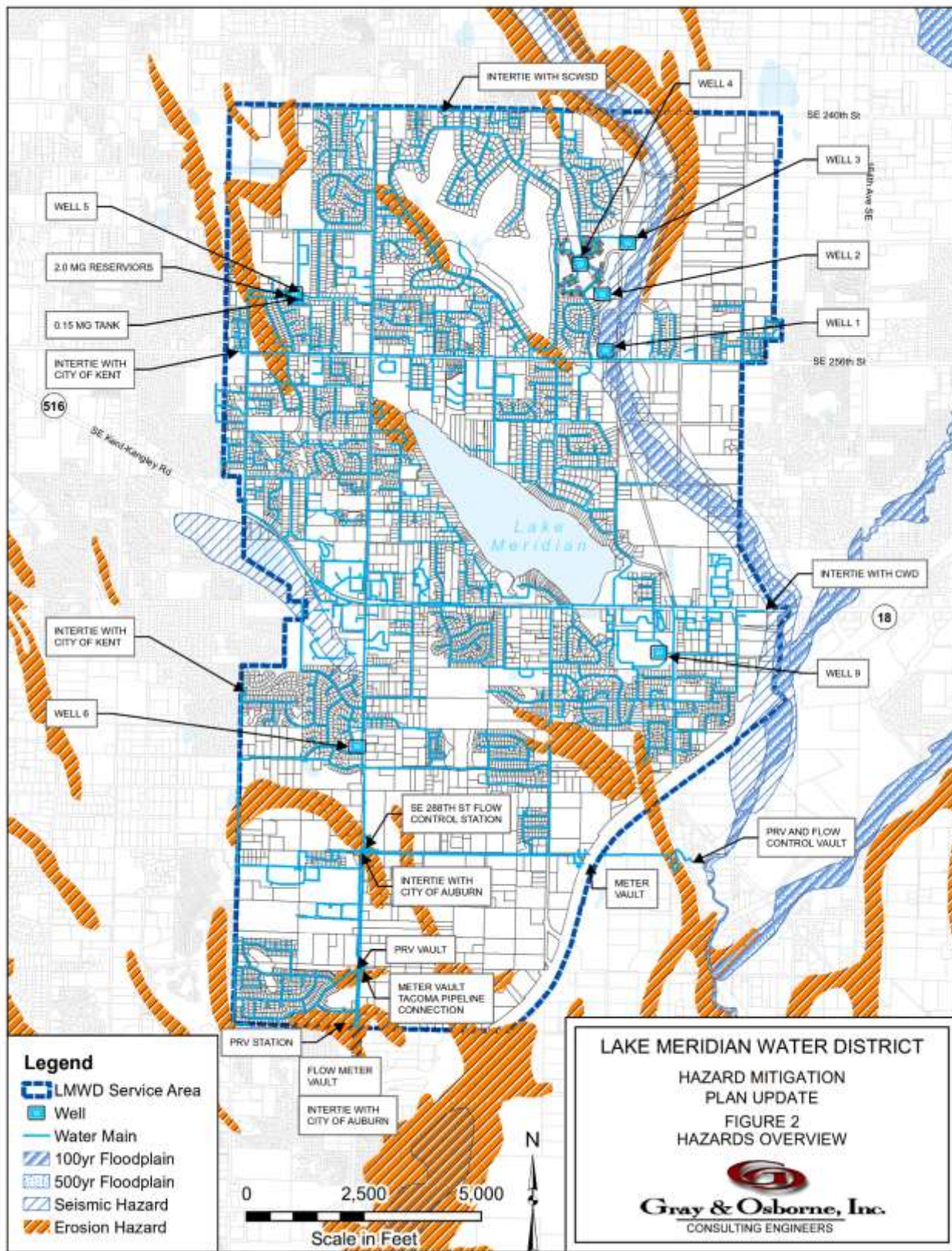


Figure 2: Hazards overview map with critical District facilities..



### Assets at Risk

ASSET	VALUE (\$)	HAZARD SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Reservoir Site &amp; Control Building</b>	14,913,787 <sup>(1)</sup>	Earthquake Terrorism Cyber Incident	The district's oldest reservoir (Tank 1100) is a 150,000 gallon elevated steel reservoir, which is seismically deficient and most vulnerable to an earthquake. Tank 1200 was seismically upgraded in 2010. The District has yet to complete a seismic evaluation on Tank 1300. Information obtained from the Washington Geologic Information Portal indicates that the site could see severe shaking in the event of a Tacoma Magnitude 7.1 or Cascadia Magnitude 9.0 earthquake.	<p>If Tank 1100 were to collapse due to a seismic event or act of terrorism, it could cause damage to the two – 2.0 MG storage reservoirs (Tanks 1200 and 1300), the control building, or the surrounding neighborhood via flooding. This would not only have a severe impact on the adjacent homes but it would cause loss of pressure and fire flow in the entire distribution system.</p> <p>An act of terrorism could damage or contaminate the Tanks causing loss of pressure and fire flow in the distribution system.</p> <p>The District's storage facilities are critical to providing fire flow and maintaining pressure within the system.</p>
<b>Well 1</b>	379,442 <sup>(1)</sup>	Earthquake Flood Dam Failure Severe Weather Hazardous Materials Terrorism	<p>An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or repairs before the well could be brought back online.</p> <p>Well 1 is located in a 100-year flood plain as well as the inundation zone in the event of a dam failure at Lake Youngs.</p> <p>In the event of severe weather, which could cause a power outage at the site, Well 1 would not be operational due to lack of an onsite backup generator.</p> <p>All the District wells are vulnerable to hazardous materials releases, which</p>	Well 1 is in permanent standby mode and not a main source of supply for the District. This would not impact the operations of the District.

			have the potential to contaminate the groundwater aquifer which supplies the District.	
<b>Well 2</b>	279,442 <sup>(1)</sup>	Earthquake Hazardous Materials Terrorism Severe Weather	All the District wells are vulnerable to hazardous materials release which have the potential to contaminate the groundwater aquifer which supply the District.	Well 2 is an emergency source of supply for the District. If well 2 were offline due to an emergency it would likely not have an impact on the District as the primary wells are more critical to operations.
<b>Well 3</b>	1,431,092 <sup>(1)</sup>	Earthquake Hazardous Materials Terrorism Severe Weather	An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or repairs before the well could be brought back online.	Well 3 is a primary source of supply for the District and the 3 <sup>rd</sup> largest well for the District. However, with Well 3 offline, the District could still meet demands with Well 6 and 9.
<b>Well 4</b>	414,372 <sup>(1)</sup>	Earthquake Hazardous Materials Terrorism Severe Weather	<p>An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or repairs before the well could be brought back online.</p> <p>All the District wells are vulnerable to hazardous materials releases, which have the potential to contaminate the groundwater aquifer which supplies the District.</p> <p>Well 4 has site security measures in place. However, someone determined to commit an act of terrorism could potentially gain access to the site.</p> <p>Well 4 does not have an onsite emergency generator and cannot be powered by an external generator.</p>	Well 4 is an emergency source of supply for the District. If Well 4 were taken offline after an emergency it would likely not have an impact on the District as the primary wells are more critical to operations.
<b>Well 5A</b>	850,130 <sup>(1)</sup>	Earthquake Hazardous Materials Terrorism	An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or	If Well 5A were to go offline it would not have a large impact on the system. The well has a maximum

			<p>repairs before the well could be brought back online. Additionally, Well 5 is vulnerable to damage if Tank 1100 were to collapse during a seismic event.</p> <p>All the District wells are vulnerable to hazardous materials releases, which have the potential to contaminate the groundwater aquifer which supplies the District.</p> <p>Well 5 is located at the District Tank site, which is secured behind a locked gate and razor wire. However, someone determined to commit an act of terrorism could potentially gain access to the site.</p>	<p>capacity of 275 gpm which could be made up through a combination of other sources.</p>
<b>Well 6</b>	1,766,262 <sup>(1)</sup>	<p>Earthquake Hazardous Materials Terrorism Severe Weather</p>	<p>An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or repairs before the well could be brought back online.</p> <p>All the District wells are vulnerable to hazardous materials releases, which have the potential to contaminate the groundwater aquifer which supplies the District.</p> <p>Well 6 currently does not have an onsite emergency generator. However, the district has a portable generator which can be used to power the well.</p>	<p>Well 6 serves as the second largest well serving the District at a capacity of 650 gpm. The District could see pressure and fire flow problems if Well 6 were offline. The District would most likely need to utilize an emergency intertie if Well 6 was offline.</p>
<b>Well 9</b>	1,857,574 <sup>(1)</sup>	<p>Earthquake Hazardous Materials Terrorism Severe Weather</p>	<p>An earthquake could cause damage to the piping and pumps at the well site, requiring replacement or repairs before the well</p>	<p>Well 9 serves as the largest source for the District at a capacity of 800 gpm. The District's remaining wells, intertie with Covington</p>

			<p>could be brought back online.</p> <p>All the District wells are vulnerable to hazardous materials releases, which have the potential to contaminate the groundwater aquifer which supplies the District.</p>	<p>Water District, and its emergency interties would be critical if Well 9 were offline.</p>
<b>District Office</b>	2,669,705 <sup>(1)</sup>	<p>Earthquake</p> <p>Terrorism</p> <p>Severe Weather</p>	<p>An earthquake has the potential to damage the District office to the extent that it is not safe for occupation.</p>	<p>The District office building is not critical to the task of supplying water to the District. While there could be substantial inconvenience to staff and delay of administrative tasks, the District office building is not critical for water pumping, storage and transmission</p>
<b>Covington Intertie</b>	180,000 <sup>(1)</sup>	<p>Earthquakes</p> <p>Volcano</p> <p>Wildfire</p> <p>Terrorism</p>	<p>An earthquake could cause damage to the piping at the intertie, requiring replacement or repairs before the well could be brought back online.</p> <p>Volcano and Wildfires could affect the water quality of Tacoma Public Utilities, which supplies Covington Water District.</p> <p>While there is site security in place, the intertie with Covington is vulnerable to non-natural hazards such as terrorism.</p>	<p>The Covington intertie provides between 0.75 MGD (521 gpm) and 1.0 MGD (694 gpm) to the District. District operations would be impacted if the Covington intertie were offline. The primary wells in the District would become more critical if the Covington intertie was non-operational.</p>
<b>Auburn Intertie</b>	738,918 <sup>(1)</sup>	<p>Earthquake</p> <p>Terrorism</p>	<p>An earthquake could cause damage to the piping at the intertie, requiring replacement or repairs before the well could be brought back online.</p> <p>While there is site security in place, the intertie with Auburn is vulnerable to non-natural hazards such as terrorism.</p>	<p>The Auburn intertie is only used as an emergency source and the loss of the Auburn intertie would not likely have a large impact on the operations of the District.</p>



<b>Tacoma Intertie</b>	666,042 <sup>(1)</sup>	Earthquake Volcano Wildfire	<p>An earthquake could cause damage to the piping at the intertie, requiring replacement or repairs before the well could be brought back online.</p> <p>While there is site security in place, the intertie with Tacoma is vulnerable to non-natural hazards such as terrorism.</p> <p>Volcano and Wildfires could affect the water quality of Tacoma Public Utilities.</p>	<p>The Tacoma intertie is an emergency source for the District. There would be no significant impact to District operations if the Tacoma intertie were offline.</p>
<b>Duberry Intertie (Auburn)</b>	763,379 <sup>(1)</sup>	Earthquake	<p>An earthquake could cause damage to the piping at the intertie, requiring replacement or repairs before the well could be brought back online.</p> <p>While there is site security in place, the intertie with Auburn is vulnerable to non-natural hazards such as terrorism.</p>	<p>The Auburn intertie is only used as an emergency source and the loss of the Auburn intertie would not likely have a large impact on the operations of the District.</p>
<b>AC Water Mains</b>	21,000,000 <sup>(2)</sup>	Earthquake	<p>The District has approximately 84,000 LF of AC main in its system. Some of the AC mains date back to 1962 and are beyond their design life. AC pipe is much more brittle than DI pipe and is more likely to break during an earthquake.</p>	<p>The impact of an AC main break would vary depending on the location and size of the break. AC main breaks will cause loss of water and decreased pressure and fire flow in the system. Numerous customers could be without water until repairs could be made.</p>

(1) Insurance Coverage Values

(2) Based on a replacement cost of \$250/lf.

## Plan Update Process

On July 25, 2019, the Board of Commissioners authorized the District to work with Gray & Osborne to prepare a plan update for inclusion as an annex to King County’s Plan.

This plan was updated through participation in the multi-jurisdictional planning process led by King County along with nearly 60 other local jurisdictions. The Planning team compiled information and reviewed this Plan under the

authorization of the District. The District Planning Team included representatives from Lake Meridian Water District as well as consulting engineers from Gray & Osborne, Inc.

The planning process was led by Operations Superintendent Brent Lewis and consulting engineer Madison McCrosky under the direction of Lance Stevens. Brent and Madison attended multiple meeting and workshops throughout the preparation of this plan summarized in the following tables.

### *Jurisdiction Planning Team*

NAME	TITLE	ORGANIZATION	CONTRIBUTION
<b>Brent Lewis</b>	Operations Superintendent	Lake Meridian Water District	<ul style="list-style-type: none"> <li>• Drafted Hazard Mitigation Plan</li> <li>• Attended Hazard Mitigation and Project Funding Workshops</li> <li>• Reviewed requests for information (RFIs) and gathered information for plan.</li> <li>• Developed Hazard Mitigation Strategies</li> <li>• Provided capability assessment</li> </ul>
<b>Chris Hall</b>	General Manager	Lake Meridian Water District	<ul style="list-style-type: none"> <li>• Attended KC Hazard Mitigation Kick off Meeting</li> <li>• Reviewed Hazard Mitigation Plan</li> <li>• Recommended adoption of the Plan by the Board of Commissioners</li> </ul>
<b>Madison McCrosky, E.I.T.</b>	Engineer	Gray & Osborne, Inc.	<ul style="list-style-type: none"> <li>• Drafted Hazard Mitigation Plan</li> <li>• Attended Hazard Mitigation and Project Funding Workshops</li> <li>• Reviewed and incorporated elements from related Plans.</li> <li>• Prepared RFI's</li> </ul>

			<ul style="list-style-type: none"> <li>Developed Hazard Mitigation Strategies</li> </ul>
<b>Lance Stevens, P.E.</b>	Project Manager	Gray & Osborne, Inc.	<ul style="list-style-type: none"> <li>Project Manager</li> <li>Reviewed Plan</li> </ul>

Once the planning team was compiled, relevant plans, programs and policies were reviewed to incorporate into this Plan.

Below is a summary of major meetings and milestones that occurred during the planning process:

*Plan Update Timeline*

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
<b>Regional Hazard Mitigation Kick-off Meeting</b>	November 28, 2019	Kick off meeting for 2020 HMP update.	Chris Hall
<b>Board of Commissioners Meeting</b>	July 25, 2019	District BOC authorizes District to retain the services of Gray & Osborne to assist in updating the HMP.	District Board of Commissioners Chris Hall Jill Krueger Lance Stevens
<b>Hazard Mitigation Strategy Workshop</b>	July 25, 2019	Meeting led by King County. Worked on developing hazard mitigation strategies. Engaged with other attending jurisdictions to discuss their plans.	Brent Lewis, Madison McCrosky
<b>Hazard Mitigation Planning Meeting</b>	July 30, 2019	Met to discuss the requirements of the plan and review the annex template provided to all jurisdictions.	Derrick Hiebert, Brent Lewis, Madison McCrosky
<b>Review of Related Documents</b>	July 25, 2019 – September 26, 2019	Reviewed District’s existing plans, policies, and procedure and incorporated those into HMP.	Madison McCrosky
<b>Plan Review and Request for Information</b>	August 12, 2019 September 20, 2019	Sent draft plan and RFI 1 to Brent Lewis for review and comment. Incorporated	Brent Lewis Madison McCrosky
<b>Public Outreach Presentation</b>	October 16, 2019	Presented to board of commissioners and public on the plan update, hazards that are the biggest threat to the District and a few projects the District is	District Board of Commissioners, Brent Lewis, Madison McCrosky

		<p>planning on completing as a result of the HMP. The meeting was advertised publically on the District's website, Facebook page, and in the Daily Journal of Commerce.</p> <p>King County Emergency Management fliers, FEMA pamphlets and Alert King County brochures were made available in the District office for members of the public.. These documents contain more information on individual emergency preparedness.</p>	
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### Public Outreach

A public outreach and engagement strategy was developed to inform and involve the public in the Hazard Mitigation Plan Update process. The District planned a special meeting for October 16, 2019 that was advertised on the District's website, the Daily Journal of Commerce (DJC), as well as the District's Facebook page. King County provided a 3D printed map of the county for use during the meeting as well as informational brochures regarding emergency management. The public meeting included an informational tri-fold for attendees that includes information about what the public can do to prepare for emergencies.

### Public Outreach Events

EVENT	DATE	SUMMARY	ATTENDEES
<b>District Website</b> <b>District Facebook Page</b>	September 27, 2019	Information regarding the Plan update was made available on the District Website and Facebook Page. The webpage included information on the Plan, the Plan update process and advertised the public meeting on October 16, 2019..	N/A
<b>DJC Advertising</b>	October 3, 2019 October 8, 2019 October 14, 2019	An advertisement was places in the Daily Journal of Commerce advertising the public meeting on October 16, 2019. The ad linked to the District website which provides more information about the	N/A



<p><b>Board of Commissioners Regular Meeting</b></p>	<p>October 16, 2019</p>	<p>meeting. A presentation was given to the Board of Commissioners during their regular meeting that went through the plan update process, hazards, and mitigation strategies. Despite being publically advertised, no members of the public attended.</p>	<p>District Board of Commissioners, Brent Lewis, Madison McCrosky</p>
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## District Hazard Mitigation Program

Hazard mitigation strategies were developed through a two-step process. Each jurisdiction participating in the King County Regional Hazard Mitigation Plan met with an internal planning team to identify a comprehensive range of mitigation strategies. These strategies were then prioritized using a process established at the county level and documented in the base plan.

### Plan Goals

- Goal 6: Community and Public Safety
- Goal 14: Strong, vibrant communities.

### Plan Monitoring, Implementation, and Future Updates

King County leads the mitigation plan monitoring and update process and schedules the annual plan check-ins and bi-annual mitigation strategy updates. Updates on mitigation projects are solicited by the county for inclusion in the countywide annual report. As part of participating in the 2020 update to the Regional Hazard Mitigation Plan, every jurisdiction agrees to convene their internal planning team at least annually to review their progress on hazard mitigation strategies and to update the plan based on new data or recent disasters.

As part of leading a countywide planning effort, King County Emergency Management will send to planning partners any federal notices of funding opportunities for the Hazard Mitigation Assistance Grant Program. Proposals from partners will be assessed according to the prioritization process identified in this plan and the county will, where possible, support those partners submitting grant proposals. This will be a key strategy to implement the plan.

The next plan update is expected to be due in April 2025. All jurisdictions will submit letters of intent by 2023, at least two years prior to plan expiration. The county will lead the next regional planning effort, beginning at least 18 months before the expiration of the 2020 plan.

### Continued Public Participation

King County and its partner cities already maintain substantial public outreach capabilities, focusing on personal preparedness and education. Information on ongoing progress in implementing the hazard mitigation plan will be integrated into public outreach efforts. This will provide King County residents, already engaged in personal preparedness efforts, with context and the opportunity to provide feedback on the county's progress and priorities in large-scale mitigation. In the vertical integration of risk-reduction activities from personal to local to state and federal, it is important that the public understand how its activities support, and are supported by, larger-scale efforts.

The outreach and mitigation teams will also continue to work with media and other agency partners to publicize mitigation success stories and help explain how vulnerabilities are being fixed. When possible, public tours of mitigation projects will be organized to allow community members to see successful mitigation in action.

### Hazard Mitigation Authorities, Responsibilities, and Capabilities

As a special purpose district, Lake Meridian Water District's authority includes providing public water service, water supply development, and planning. The Cities of Kent, Covington, and Auburn as well as King County are responsible for land use in the District boundaries. Lake Meridian Water District collects revenue through service and usage fees, and may have potential sources of funding available through FEMA Hazard Mitigation Grants, Drinking Water State Revolving Fund (DWSRF) loans, and Public Works Trust Fund (PWTF) loans. The District will continue to use these resources to fund staffing and facilities improvements.

### Plans

PLAN TITLE	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
<b>Water Comprehensive Plan</b>	Lake Meridian Water District	Chris Hall, General Manager	The WCP supports the efforts in minimizing the vulnerabilities within the water system and develops capital improvements for the next 20 years.
<b>Emergency Response Plan</b>	Lake Meridian Water District	Chris Hall, General Manager	Identifies the course of action during an emergency scenario to minimize vulnerabilities to the water system.

The following existing programs, policies, and processes are applicable to this hazard mitigation plan:

### Programs, Policies, and Processes

PROGRAM/POLICY	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
<b>Capital Improvement Program (CIP)</b>	Lake Meridian Water District	Chris Hall, General Manager	The annual CIP supports projects that are identified in this Mitigation Plan. The CIP is updated on an annual basis and is adopted by the Board of Commissioners.
<b>Emergency Interties Policy</b>	<ol style="list-style-type: none"> <li>Lake Meridian Water District</li> <li>City of Kent</li> <li>Covington Water District</li> <li>Soos Creek Water &amp; Sewer District</li> <li>City of Auburn</li> <li>Tacoma Public Utilities</li> </ol>	<ol style="list-style-type: none"> <li>Chris Hall, General Manager</li> <li>Tim LaPorte, Director of Public Works</li> <li>Thomas Keown, General Manager</li> <li>Ronald Speer, General Manager</li> <li>Randy Baily, Assistant Director of Public Works – Maintenance &amp; Operations</li> <li>Scott Dewhirst, Superintendent</li> </ol>	The District has emergency interties with all adjacent water systems. Interties increase reliability of water systems during emergencies and other unusual operational circumstances.
<b>Mutual Aid Agreement Policy</b>	<ol style="list-style-type: none"> <li>Lake Meridian Water District</li> <li>City of Kent</li> <li>Covington Water District</li> </ol>	<ol style="list-style-type: none"> <li>Chris Hall, General Manager</li> <li>Tim LaPorte, Director of Public Works</li> </ol>	The District participates in Mutual Aid Agreements with adjacent jurisdictions, King County and the

	<ol style="list-style-type: none"> <li>4. Soos Creek Water &amp; Sewer District</li> <li>5. City of Auburn</li> <li>6. Tacoma Public Utilities</li> </ol>	<ol style="list-style-type: none"> <li>3. Thomas Keown, General Manager</li> <li>4. Ronald Speer, General Manager</li> <li>5. Randy Baily, Assistant Director of Public Works – Maintenance &amp; Operations</li> <li>6. Scott Dewhirst, Superintendent</li> </ol>	<p>State of Washington. Mutual Aid Agreements allows agencies to contract with each other to provide personnel and equipment to other agencies that request assistance during a disaster or emergency.</p>
<b>Wellhead Protection Program</b>	Lake Meridian Water District	Chris Hall, General Manager	<p>The District’s Wellhead Protection program was developed to protect the groundwater resources that supply the District’s wells. The Program focuses on the delineation of wellhead protection areas, the identification of existing and potential contamination hazards and the development of protection strategies.</p>

### Hazard Mitigation Strategies

The following sections describe the Hazard Mitigation Strategies from the previous plan as well as the updated 2020 strategies. In developing the strategies for this update, the District came up with a list of several different projects that help to reduce risk associated with the hazards addressed in previous sections. The District has chosen to consolidate all of these projects into two hazard mitigation strategies – Earthquake Resiliency and Emergency Preparedness. These two strategies aim to improve the water system’s resiliency to natural and man-made hazards and align with the goals of Community and Public Safety and Strong, Vibrant Neighborhoods.

Mitigation strategies and projects were developed based on previous 2015 strategies, information contained in existing plans and assessments, and information obtained from District staff. Other mitigation projects may arise in the future that are not identified as part of the District’s program presented in this plan. Such projects may be deemed necessary for ensuring water quality, preserving emergency water supply, or addressing unforeseen problems with the District’s water system. Due to funding availability and budgetary constraints, the implementation of these projects may require that the proposed completion date for projects in the plan be rescheduled. When new information becomes available, the District may reschedule, expand, or reduce the scope of the projects.

### 2015 Hazard Mitigation Strategy Status

STRATEGY	DESCRIPTION	PRIORITY <sup>(2)</sup>	STATUS
KCWD111-1 <sup>1</sup>	Continue to support county-wide initiatives	High	Completed
KCWD111-2	Participate in the plan maintenance strategy	High	Completed



<b>KCWD111-3</b>	Perform seismic evaluation of Reservoir/Tank Site.	Medium	Not completed, carried over to 2020.
<b>KCWD111-4</b>	Perform seismic evaluation of the District Office.	Medium	Not completed, carried over to 2020.
<b>KCWD111-5</b>	Replace active asbestos concrete main at Facility #48 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-6</b>	Replace active asbestos concrete main at Facility #28 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-7</b>	Replace active asbestos concrete main at Facility #51 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-8</b>	Replace active asbestos concrete main at Facility #26 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-9</b>	Replace active asbestos concrete main at Facility #45 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-10</b>	Replace active asbestos concrete main at Facility #32 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-11</b>	Replace active asbestos concrete main at Facility #46 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-12</b>	Replace active asbestos concrete main at Facility #38 to mitigate earthquake hazards. <sup>(3)</sup>	Medium	Not completed, carried over to 2020.
<b>KCWD111-13</b>	Construct a new storage tank to assist with minimal pressure in certain areas and increase water storage available.	Low	Not completed, carried over to 2020.
<b>KCWD111-14</b>	Loop Closure Program to improve flow reliability and redundancy in the system.	Low	Ongoing.
<b>KCWD111-15</b>	Add Hazard Mitigation Plan objectives to District's Water Comprehensive Plan with next update.	High	Ongoing, District currently updating their Water Comprehensive Plan.

- (1) Lake Meridian Water District changed their name from King County Water District No. 111 in January 2019.
- (2) Priority status from 2015 Plan. Priorities have been updated for this plan.
- (3) Facility numbers are from the 2015 Plan.

*2020 Hazard Mitigation Strategies*

STRATEGY	LEAD AGENCY/POC	TIMELINE	PRIORITY
<b>Earthquake Resiliency</b>	Lake Meridian Water District/ Chris Hall	2019-2035	High
<b>Emergency Preparedness</b>	Lake Meridian Water District/ Brent Lewis	2019-2025	High

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## Hazard Mitigation Strategy 1 Earthquake Resiliency

Lead Points of Contact (Title)	Partner Points of Contact (Title)	Hazards Mitigated / Goals Addressed	Funding Sources and Estimated Costs
Chris Hall, General Manager	Brent Lewis, Operations Superintendent  <i>Washington State Department of Health</i>	Mitigation for Earthquake hazard.  Addresses Goal 6-Community & Public Safety	District Rates FEMA Grants PWTF Loans  <b>Estimated Costs:</b> \$5,750,000 for all projects.
<p>Strategy Vision/Objective</p> <p><i>Maintain public health, adequate fire suppression flow, and positive pressure in water system in the event of an earthquake.</i></p>			
<p>Mitigation Strategy</p> <p><i>Construct new storage facility on opposite side of District, seismically harden water storage facilities and install seismic valves to control water flow post-earthquake.</i></p>			
<p>2-Year Objectives</p> <ul style="list-style-type: none"> <li>• Update District Standards to include all restrained joint pipe.</li> <li>• Seismic Evaluation of Tank 1100</li> <li>• Design/ Construction of New Reservoir</li> <li>• Demolition of 1100 Reservoir</li> <li>• New Covington Wholesale Connection</li> </ul>	<p>5-Year Objectives</p> <ul style="list-style-type: none"> <li>• Install Seismic Valves on Tank 1200 and Tank 1300</li> <li>• Perform seismic evaluation on Tank 1300</li> <li>• Perform Seismic Retrofit on Tank 1300</li> <li>• On-going AC Main replacement program</li> </ul>	<p>Long-Term Objectives</p> <ul style="list-style-type: none"> <li>• Seismic evaluation of control building at reservoir site</li> <li>• Upgrade telemetry and VFD pumps at Reservoir site.</li> <li>• Ensure any developer extensions and capital improvement projects are designed with seismic resiliency in mind.</li> <li>• Continue water main looping and addition of</li> </ul>	

isolation valves.

Implementation Plan/Actions

- *Complete a pre-design study which will determine the required size and a possible location for a new reservoir. This study will also include a seismic evaluation of Tank 1100.*
- *Apply for funding for new reservoir.*
- *Work with Covington Water District to design and construct new wholesale connection*
- *Complete design plans and specifications for new reservoir, construct new reservoir.*
- *Demolish Tank 1100.*
- *Prioritize AC main replacement based on main age, liquefaction potential, and existing condition of main. All new water mains will be ductile iron with restrained joints which is more resilient to earthquakes.*

Performance Measures

- *Increased water pressure and fire flow availability in deficient areas.*

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## Hazard Mitigation Strategy 2 Emergency Preparedness

Lead Points of Contact (Title)	Partner Points of Contact (Title)	Hazards Mitigated / Goals Addressed	Funding Sources and Estimated Costs
Chris Hall, General Manager	Brent Lewis, Operations Superintendent	<p>Mitigation for Earthquake, Volcano, Landslide, Wildfire, Flood, Severe Weather, Hazardous Materials Incident, Health Incident, Terrorism, Civil Disturbance</p> <p>Addresses Goal 6 - Community and Public Safety and Goal 14 Strong, Vibrant Neighborhoods.</p>	<p>District Funds FEMA Grants PWTF Loans</p> <p><b>Estimated Cost:</b> \$2,600,000 for all projects.</p>
<p><b>Strategy Vision/Objective</b>  <i>The objective of this strategy is to increase staff knowledge regarding emergencies and improve the emergency safeguards in the water system to minimize outages in the system during an emergency.</i></p>			
<p><b>Mitigation Strategy</b>  <i>All primary wells for the system are to be equipped with onsite emergency generators that will automatically supply power in the event grid power is lost. Increasing staff training and inventory of replacement water main parts will make the District more prepared to react in emergencies.</i></p>			
<p><b>2-Year Objectives</b></p> <ul style="list-style-type: none"> <li>Well 6 Replacement to include onsite emergency generator with automatic transfer switch.</li> <li>Update Emergency Response Plan.</li> <li>Increase staff training on emergency response procedures</li> <li>Installation of</li> </ul>	<p><b>5-Year Objectives</b></p> <ul style="list-style-type: none"> <li>Obtain emergency CB radios for communications.</li> <li>Install an emergency generator at Well 9 with emergency transfer switch.</li> <li>Increase stock of replacement/repair parts for damaged water mains.</li> </ul>	<p><b>Long-Term Objectives</b></p> <ul style="list-style-type: none"> <li>Ensure any developer extensions and capital improvement projects are designed with hazard resiliency in mind.</li> <li>Security upgrades at</li> </ul>	

		<p>District facilities.</p> <ul style="list-style-type: none"> <li>• Continue water main looping and addition of isolation valves.</li> </ul>
<p>Implementation Plan/Actions</p> <ul style="list-style-type: none"> <li>• <i>Review existing Emergency Response Plan. Update ERP as required and provide copy of ERP to all staff members.</i></li> <li>• <i>Apply for funding for design and construction of emergency generators.</i></li> <li>• <i>Complete design and construction of Well 6 Replacement project</i></li> <li>• <i>Increase staff training in emergency response procedures.</i></li> <li>• <i>Review Capital Projects and Developer Extensions and evaluate how these projects align with creating a more resilient system.</i></li> </ul>		
<p>Performance Measures</p> <ul style="list-style-type: none"> <li>• <i>Increased staff emergency preparedness.</i></li> </ul>		

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