



Hazard Mitigation Plan Data Collection Guide

Valley of the Moon Water District
Hazard Mitigation Planning Committee (HMPC)

Prepared by

Wood Environment & Infrastructure Solutions, Inc.

January 2020

Overview

The contents of this workbook have been designed to assist the Valley of the Moon Water District (District) in the 2020 Local Hazard Mitigation Plan (LHMP), in accordance with the Federal Disaster Mitigation Act (DMA) of 2000 requirements.

This guide includes a description of the necessary background information needed to support the hazard mitigation plan process. This includes the preparation of the hazard identification and vulnerability assessment, evaluating the District's current hazard mitigation capabilities, and a review of possible hazard mitigation projects or activities intended to prevent or reduce future losses. The plan's key components will be prepared through a formal planning process, which will ultimately culminate in adoption of the plan.

The essential information needed to support the planning process includes current background data about the District based on, but not limited to the following documents:

- Water System Master Plan (2019)
- Urban Water Management Plan (2015)
- Strategic Water Supply Plan (1999)
- Water Storage Plan (1999)

Other documentation may include District standard plans, ordinances, regulations, and procedures whose intent is to minimize future losses, as well as technical studies and reports. Additional information for the LHMP will include the District's technical and organizational capabilities to perform hazard mitigation/loss prevention functions. It is important that the plan shows what the District is doing now to limit future disaster losses and capture any mitigation success stories based on actions documented in other plans (e.g. Emergency Preparedness Programs, Generator Back-Up, Mutual Aid Support, Strategic Water Distribution Stations, Water Conservation Programs).

The planning process is heavily dependent on existing data to be supplied by each of the participants represented on the Hazard Mitigation Planning Committee (HMPC). The DMA plan development process does not require the development of new data but requires **existing data only**. The goal of this process is to produce a local hazard mitigation plan that meets the District's needs, as well as the requirements of the DMA of 2000 and contains a list of projects that may be eligible for streamlined federal pre- or post-disaster mitigation funding.

What is Mitigation?

Hazard mitigation is defined by the Federal Emergency Management Act (FEMA) as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study that was recently updated to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of \$6 in avoided future disaster losses in addition to saving lives and preventing injuries (Natural Hazard Mitigation Saves: 2017 Interim Report).

Mitigation generally means reducing long-term risk from hazards to acceptable levels through pre-determined measures accompanying physical development, for example: strengthening structures to withstand high winds or snow loads; elevating, removing or limiting development in flood-prone areas; clearing defensible space around residences in Wildfire Urban Interface (WUI) areas; or designing development away from areas with geological instability. Mitigation can also protect existing development through seismic retrofitting, critical infrastructure protection, and floodproofing.

Mitigation is different from emergency preparedness or response. Preparedness concentrates on activities which make a person, place, or organization ready to respond to a disaster with emergency equipment, food, emergency shelter, and medicine. Response activities may reduce damages, such as sandbagging during a flood, but this is a short-term solution and requires advance warning and resources to be in place during the event. Mitigation of flood hazards through wise floodplain management and hazard avoidance is an example of a long-term solution.

Participation

The DMA planning regulations and guidance stress that each entity seeking the required FEMA approval of their mitigation plan must:

- Participate in the process;
- Detail areas within the planning area where the risk differs from that facing the entire area;
- Identify specific projects to be eligible for funding; and
- Have the Board of Directors formally adopt the plan.

For HMPC members, 'participation' means the planning committee representatives will:

- Attend and participate in HMPC meetings;
- Provide available data that is requested of the HMPC coordinator;
- Provide input on specific sections of the Draft LHMP;

- Provide input on mitigation actions relevant to the jurisdiction's department;
- Review and provide/coordinate comments on the Draft Plan;
- Advertise, coordinate and participate in the public input process; and
- Coordinate the formal adoption of the plan by the Board of Directors.

Hazard Mitigation Plan Data Collection Guide

This guide contains an explanation of the types of hazard mitigation/loss prevention data that is needed for the hazard mitigation planning process. This guide identifies specific requirements for the Risk Assessment Process, which includes the Hazard Identification, Vulnerability, and Capability Assessments. It also defines requirements for the Mitigation Strategy.

The worksheets have been developed to assist with the development of the Draft LHMP. The District should utilize members of their planning subcommittee to review the Draft LHMP and complete the worksheet forms. A step by step process is included in this guide.

Data collection worksheets are due by Monday March 30th to Juliana Prosperi.

Project Contacts

Juliana Prosperi, AICP, LEED AP®, ENV SP
Wood Environment & Infrastructure Solutions, Inc.
Project Manager
Office: (916) 636-3200
Cell: (303) 503-7794
Email: juliana.prosperi@woodplc.com

Jeff Brislaw, CFM
Wood Environment & Infrastructure Solutions, Inc.
Senior Hazard Mitigation Associate
Phone: (303) 209-3781
Email: jeff.brislawn@woodplc.com

Chris Petlock
Valley of the Moon Water District
Administration and Finance Manager
HMPC Coordinator
Phone: (707) 996-1037
Email: cpetlock@vomwd.org

Steps to prepare the Valley of the Moon Water District LHMP

1. Attend planning meetings for the Valley of the Moon Water District LHMP.
2. Download a Word (editable) version of the Data Collection Guide from the project file sharing site (link to be provided in email). Fill out the Worksheets. A PDF copy of the plan can also be downloaded or provided by email.
3. Convene a HMPC (Steering Committee and Working Group) and ensure that at least half of group consists of stakeholders/general public for collaboration among local and regional agencies and organizations.
 - a. Include departments such as planning, engineering, public works, GIS, water conservation, etc as applicable
 - b. Include outside stakeholders and general public, such as county, state agencies, faith-based groups, and educational representatives
 - c. Document any meetings with sign-in sheets (use blank template attached)
4. Review Worksheets #1 and #2
 - a. Identify hazard impacts (Use historic hazard event worksheet to provide details, or collect related reports, articles or memos with damage amounts, damage assessment reports, etc.)
 - b. Identify any hazard studies or plans – send electronic versions (preferred if available), web link, or hardcopies to District Valley of the Moon Water District HMPC Coordinator (Chris Petlock).
 - i. Example: Valley of the Moon Water District Draft Water System Master Plan (April 2019). This draft plan was made available for the public in April 2019. The plan provides an overall guide for infrastructure improvements to ensure that the District continues to reliably and cost-effectively serve its customers through 2050. The plan summarizes the District's service area and existing water infrastructure, as well as existing and future water demands and supplies. The plan also includes a supply and storage capacity assessment and capital improvement program. More information is available here: <https://www.vomwd.org/watersupplyplanning>
5. Review Worksheet #3 Vulnerability Assessment
 - a. Review discussion on potential losses and note where you may have more specific information on past losses or potential for future losses specific to the District, department, other utilities in the region (Sonoma Water, etc.), as well as other jurisdictions (City of Sonoma, Sonoma County, etc.).

Note: Wood will be evaluating the flood, earthquake and wildfire analyses based on current District GIS datasets and recent Digital FIRMs and current wildfire hazard data.

6. Review Worksheet #4 Capability Assessment (once available)

- a. Include information on District-Specific Existing Capabilities
- b. Using the 'Track Changes' feature in Word, mark up the Worksheet #4 document with changes, **OR** use the attached worksheets to provide information on capabilities.
- c. Describe development trends in the District's service area. Provide an estimate of future trends (if available).
 - i. According to the 2019 Water System Master Plan, the District's demographics include a range of income, household size, and water demands including affluent households located along the foothills characterized by larger lots and homes with high water demands for irrigation to disadvantaged communities that tend to have smaller lots and lower water use. The District also serves an increasing number of second homeowners and vacation rentals in the Sonoma Valley area. The current population of the service area is approximately 24,164, which is projected to slightly increase in 2020 to 24,873 people.
 - ii. Sonoma County General Plan 2020 (2008)
 - iii. Urban Water Management Plan (2015) (update will occur in 2020)
 - iv. County of Sonoma Water and Sewer District Providers Municipal Service Review Final Report (2004)
- d. Upload a Track Changes' Word version of Worksheet #4 to the file sharing site. Provide this and notify the District's HMPC coordinator by **Date TBD**.

7. Develop a Mitigation Action Plan

- a. Provide input to the details of the mitigation actions/projects, where applicable
- b. Prioritize actions/projects
- c. A worksheet and template will be provided to facilitate this, with **due date TBD**. Guidance on developing mitigation actions will be provided at HMPC #3, with worksheets due dates after HMPC #3.
- d. Consider ideas for other projects in the District's service area. These can be priority or capital improvement projects that may be in the works already but not captured in the plan or that may have become a priority following recent disaster declarations in Sonoma County. These project may also be the same as critical projects recommended in the 2019 Water System Master Plan that have been

prioritized or are near-term projects that need to be implemented in the next five to ten years, specifically as they relate to hazard mitigation (e.g. Saddle Tank Replacement Project). These will be discussed at a future HMPC meeting. A worksheet and template will be provided for both current and new project, with **due date TBD** (after HMPC #3).

8. Review Chapter 7.2 Maintenance (when available)
 - a. Review this section for future compliance strategies;
 - b. Note any potential to incorporate the plan into existing planning mechanisms or opportunities to do so in the future (**Important**) (e.g. amend the Urban Water Management Plan with drought-related aspects, etc.)
 - c. Note opportunities and strategies for continued public involvement (Wood will document meetings specific to the development of the proposed LHMP).
9. Help advertise and coordinate public meetings and workshops, where applicable
10. Provide documentation of all meetings to District's HMPC coordinator
11. Review and comment on the draft plan
12. When plan receives conditional approval from FEMA, adopt the plan
13. Continue to implement the plan!

Information Sources

The following are possible sources of information to assist with the preparation of the plan:

- Sonoma County 2020 General Plan (2008)
 - Public Safety Element available for download here:
<https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/Public-Safety/>
- Flood Alert System
- Sonoma County 2016 Hazard Mitigation Plan Update (April 2017) Available for download here: <https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/Hazard-Mitigation/Approved-Update/>
- Sonoma County Water Agency Local Hazard Mitigation Plan Update (2018) Available for download here: <https://www.sonomawater.org/secureourwater/>
- GIS databases – District's Asset Management Module (contains GIS shapefiles)

- 2018 California State Hazard Mitigation Plan (Available here: <https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/state-hazard-mitigation-plan>)
- Hazard specific plans (wildfire):
 - Sonoma County Community Wildfire Protection Plan (2016) Available for download here: <http://www.firesafesonoma.org/main/docs>
- Other related plans in region (nearby cities):
- Capital Improvement Projects
 - CIPs are listed in the 2019 Water System Master Plan available here: <https://www.vomwd.org/watersupplyplanning>
- Local Building codes/regulations
- District Construction Standards

The Risk Assessment Process

The risk assessment process includes three components: hazard identification, vulnerability assessment, and capability assessment. Data needs and worksheets for each of the risk assessment components are included in this guide. Use these worksheets to evaluate the District's current vulnerability to the hazards that will be assessed in the plan. The intent is to identify the significance or risks of these hazards to District staff, operations, buildings, facilities, resources (e.g. water), and infrastructure

Valley of the Moon Water District Local Hazard Mitigation Plan

Worksheet #1: Hazard Identification

Name of Department: _____

Use this worksheet to identify possible hazards that may impact the District. Hazards identified in the 2018 California State Hazard Mitigation Plan are listed, and not all hazards may be applicable to the District. Please rank according to the guidelines that follow the table. Use copies of Worksheet #2: Historic Hazard Event to provide evidence to justify your conclusions.

Hazard	Frequency of Occurrence	Hazard Extent	Potential Magnitude	Significance	Hazard Map? (Paper/GIS/ Source)
Dam & Levee Failure					
Drought and Water Storage (groundwater quality)					
Earthquakes					
Floods (including stormwater drainage)					
Agricultural and Silvicultural Pests/Disease					
Air Pollution					
Aquatic Invasive Species					
Avalanches					
Energy Shortage and Energy Resiliency (PSPS)					
Landslides					
Epidemic/Pandemic/Vector- Borne Disease					
Tree Mortality					
Severe Weather*					
Soil Hazards					
Volcanoes					
Wildfires					
Climate Change					
Human-Caused Hazards (sociotechnical/ technological)					
Hazardous Material Release					
Oil Spills					
Natural Gas Pipeline Hazards					
Radiological Accidents					
Train Accidents (Explosions/Toxic Releases)					
Well Stimulation and Hydraulic Fracturing Hazards					

Threat and Disturbance Hazards					
Terrorism					
Cyber Threats					
Civil Disorder					
*Severe Weather Includes dust storms, extreme temperatures, freeze cycles, fog, hail, heavy rains, lightning, tornadoes, windstorms, and winter storms					

Frequency of Occurrence:

Highly Likely: Near 100% probability in next year.
 Likely: Between 10 and 100% probability in next year or at least one chance in ten years.
 Occasional: Between 1 and 10% probability in next year or at least one chance in next 100 years.
 Unlikely: Less than 1% probability in next 100 years.

Hazard Extent:

Limited: Less than 10% of planning area
 Significant: 10-50% of planning area
 Extensive: 50-100% of planning area

Potential Magnitude:

Catastrophic: Multiple deaths, complete shutdown of facilities for 30 days or more, more than 50% of property is severely damaged
 Critical: Multiple severe injuries, complete shutdown of facilities for at least 2 weeks, more than 25% of property is severely damaged

Limited: Some injuries, complete shutdown of critical facilities for more than one week, more than 10 percent of property is severely damaged

Negligible: Minor injuries, minimal quality-of-life impact, shutdown of critical facilities and services for 24 hours or less, less than 10 percent of property is severely damaged.

Significance (your subjective opinion): Low, Medium, High

Prepared by: _____

Phone: _____

Email: _____

Valley of the Moon Water District Local Hazard Mitigation Plan

Worksheet #2: Historic Hazard Event

Name of Department: _____

Please fill out one sheet for each significant hazard event with as much detail as possible. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure or facility damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Opinion on likelihood of occurring again	
Source of information	
Comments	

Prepared by: _____

--

Phone: _____

Email: _____

Valley of the Moon Water District Local Hazard Mitigation Plan

Worksheet #3: Vulnerability Assessment

Name of Department: _____

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in the District's service area by using the best available data to complete the table and questions that follow. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets as defined below. District facilities may include water tanks, booster pump stations, and distribution lines from the Sonoma Aqueduct. Alternately you can edit the District's information in Section 4.3 of the plan. Attach supporting documentation, such as photographs, reports, or plans if possible. In the hazard column of the asset inventory table, indicate if there is a specific hazard to which the asset is at risk.

Critical Facilities

Critical Facilities must remain operational during any major disaster and be designed, located, and constructed accordingly. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities	High Potential Loss Facilities	Transportation and Lifeline
<ul style="list-style-type: none">▪ Hospitals and other medical facilities▪ Police stations▪ Fire station▪ Emergency Operations Centers	<ul style="list-style-type: none">▪ Power plants▪ Dams/levees▪ Military installations▪ Hazardous material sites▪ Schools▪ Shelters▪ Day care centers▪ Nursing homes▪ Main government buildings	<ul style="list-style-type: none">▪ Highways, bridges, and tunnels▪ Railroads and facilities▪ Bus facilities▪ Airports▪ Water treatment facilities▪ Natural gas facilities and pipelines▪ Oil facilities and pipelines▪ Communications facilities

Natural, Cultural, and Historical Assets

Natural resource assets may include wetlands, threatened and endangered species, or other environmentally sensitive areas. Historical assets include state and federally listed historic sites.

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

*EI: Essential Infrastructure; VF: Vulnerable Facilities; HM: Hazardous Materials Facilities; NA: natural assets

Additional Vulnerability Questions

Describe growth and development trends and future growth areas in the District's service area (unincorporated Sonoma County) and how they relate to hazard areas and vulnerability concerns/issues.

Prepared by: _____

Phone: _____

Email: _____

Valley of the Moon Water District Local Hazard Mitigation Plan

Worksheet #4: Capability Assessment

Name of Department: _____

Capabilities are the typical programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete this worksheet from your department's perspective and provide supporting documentation if possible. Note: many of these regulatory tools may not be within the purview of a special district.

Regulatory

The following planning and land management tools are typically used by local jurisdictions to implement hazard mitigation activities. Please indicate which the District or your jurisdiction has in place. If your jurisdiction does not have this capability or authority, please indicate if a higher level of government has the authority. Also use the comments column to indicate how we can obtain a copy of the plan or document (i.e. available on the web (include address), will put on web-share site, will e-mail or mail, will fax).

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General or Comprehensive plan		
Zoning ordinance		
Subdivision ordinance		
Growth management ordinance		
Floodplain ordinance		
Other special purpose ordinance (stormwater, steep slope, wildfire)		
Building code		
Fire department ISO rating		
Erosion or sediment control program		
Stormwater management program		
Site plan review requirements		
Capital improvements plan		
Economic development plan		
Local emergency operations plan		
Other special plans		
Flood insurance study or other		

engineering study for streams		
Elevation certificates (for floodplain development)		
Other		

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your jurisdiction. If there are public resources at the next higher level government that can provide technical assistance, please indicate so in the comments column.

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices			
Engineer/professional trained in construction practices related to buildings and/or infrastructure			
Planner/engineer/scientist with an understanding of natural hazards			
Personnel skilled in GIS			
Full time building official			
Floodplain manager			
Emergency manager			
Grant writer			
Other personnel			
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)			
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)			
Other			

Additional Capabilities Questions

Does your community have any hazard-related certifications, such as Storm Ready certification or Firewise Communities certification?	
Describe any past or ongoing public education or information programs, such as for responsible water use, earthquake or fire safety, household preparedness, or environmental education.	
Describe any other past or ongoing projects or programs designed to reduce disaster losses. These may include projects to protect critical facilities.	
Prepared by: _____ Phone: _____ Email: _____	

Sign-In Sheet - Valley of the Moon Water District Local Hazard Mitigation Plan

Please use this sign-in sheet to document internal hazard mitigation planning meetings at the District. This sign-in sheet will be included in an appendix to the LHMP to highlight all District staff meetings related to the hazard mitigation planning process.

Jurisdiction:

Date: _____ **Time:** _____

Location:

Meeting Purpose: