3

HAZARD APPENDICES

This section contains the following:

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APPENDIX AA: DROUGHT

Last Updated: April 2024

Incident/Unified Command	• N/A
Support Agencies and Organizations	• N/A

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Drought Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from drought. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond and operate in the event of drought.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding drought incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from drought incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of drought and for supporting a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's drought response strategy is based on the following objectives:

- Protect human health and the environment.
- Manage decreases in water supply, increases in water demand, and changes in water quality.
- Minimize damage to rangeland and seeded pasture resources during and after drought.
- Reduce the risk of economic loss and social stress.

1.2.2 Critical Tasks

During a drought response, critical tasks may include the following:

- Reduce water use.
- Identify supplemental water supplies.
- Enforce water restrictions and respond to variance requests.
- Establish, communicate, and amplify key messages to the public.

1.3 HAZARD SITUATION

1.3.1 General

Drought is defined as a deficiency of precipitation experienced over an extended period, usually a season or more. California's water resources have been stressed by periodic drought cycles and overuse in some places, creating the need for unprecedented state and local restrictions in water use. Climate change is expected to increase drought and extreme weather, including high heat. While the duration and severity of drought is always in question, it is certain that California and Solano County will continue to be impacted by drought.

Solano County obtains its water supply from local surface water resources and groundwater and imported water from the Solano Project and the State Water Project. Solano County has an array of surface water resources, such as creeks, drainages, sloughs, and marshes, and extensive infrastructure, for delivering water for irrigation and municipal uses. Through the Solano Project, Putah Creek and Lake Berryessa provide most of the county's surface water for urban and agricultural consumption. The Sacramento-San Joaquin Delta and the Cache Slough Complex also provide a significant urban and agricultural water supply source. The Suisun Marsh and other marshlands located along the Bay-Delta play an important role in maintaining and protecting water quality for human and natural communities.

Solano County uses groundwater for both municipal and agricultural water supply. The municipalities of Rio Vista and Dixon are served solely by groundwater, while the municipality of Vacaville obtains approximately a third of its municipal water supply from groundwater. Many of the agricultural producers within the Solano Irrigation District, Maine Prairie Water District, and Reclamation District No. 2068 use surface water.

Agricultural producers located outside the jurisdiction of districts that provide surface water rely exclusively on groundwater. Many rural residential landowners use individual shallow groundwater wells. Several small rural residential water systems also provide groundwater to their customers.

Drought can directly or indirectly impact all residents and visitors of Solano County.

This section is adapted from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding drought in Solano may be found in the MJHMP: Volume 1.

1.3.2 Impacts

Drought incidents have the potential to cause the following impacts on community and public safety:

- Disruption of economic, health, and critical infrastructure systems through both direct and secondary hazards.
- Poor water source quality that may affect the ability to meet drinking water standards.
- Stressed water sources due to high demand by drought-affected users, including loss of water supply.

- Increased costs and reduced revenues.
- Ecosystem disruption, including soil nutrient uptake rates and impacts on fish, game, wildlife, and plant species.
- Agricultural production loss and associated job loss and increased food prices.
- Restricted access to recreational areas.

1.3.3 Cascading Hazards

Droughts increase the risk of other hazards, like wildfires, flash floods, and landslides or debris flows.

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- Although drought is usually a prolonged and slow-moving incident, impacts can sometimes escalate suddenly and cause water supply disruptions in a matter of weeks.
- Solano County has experienced prolonged periods of abnormally dry or unusually hot weather that threaten the availability of water. This trend is projected to continue.
- Communities can explore incorporating new practices, projects, and other mitigation measures into day-to-day operations to be less vulnerable to and better prepared for the next drought.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant drought incident include:

- Low precipitation
- High temperatures
- Diminished streamflow, ground, and reservoir water levels
- Depleted soil moisture
- Reduced snowpack

2.2.2 Drought Forecasting

Briefings by the National Weather Service (NWS) to emergency management and other interested groups have become vital to seasonal resource planning across the country. In California and Nevada, the NWS in-person briefings occur primarily in September-October before the winter season when most precipitation falls. This timing is typically based on flood preparation and wildfire. In response to significant drought, the NWS Western Region may also hold statewide monthly drought calls with the California Office of Emergency Services (Cal OES).

In addition, the California Department of Water Resources (DWR) has developed a drought website (https://water.ca.gov/drought) containing links to water supply data, such as snowpack, precipitation, runoff, and reservoir storage, to help evaluate current water supply.

2.2.3 Notification or Confirmation

Notification or confirmation of a significant drought event will most often come from Cal OES. Solano County's current drought status may also be viewed on the U.S. Drought Monitor website (https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA).

There are five different classes of drought, each with differing impacts, as defined by the National Integrated Drought Information System (NIDIS):

- D0: Abnormally Dry
- D1: Moderate Drought
- D2: Severe Drought
- D3: Extreme Drought
- D4: Exceptional Drought

Additional information about expected impacts at each level of drought may be found in the MJHMP: Volume 1.

2.3 CONDUCT OF PUBLIC WARNING

The State of California conducts public warning related to drought that may be augmented and amplified by Solano OES and other County departments. As drought is considered a slow-moving incident, immediate threats to life safety are unlikely, so more traditional means of communication are used, such as television, social media, and print news. The state also maintains a website (https://drought.ca.gov/) that includes information such as state-enacted drought restrictions, current conditions, and links to drought assistance. Considerations for individuals who have limited digital access, such as the unhoused, will be accounted for in outreach efforts.

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to a drought threat include:

- **Establish water conservation goals.** Setting water conservation goals early when a drought is expected can help ensure water availability, habitat protection, and protect water quality. Examples include letting lawns go dormant, using a bucket to wash vehicles, and applying mulch to shrubs and ornamental trees. This may include water utility "Find it and Fix it" leak reduction programs.
- **Public messaging.** Public messaging should inform the public about actions they can take to mitigate the threat, such as water conservation tips, community conservation goals, and the potential for water restrictions if goals are not met. The California Save Our Water Campaign is a good source for these materials.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to drought include:

- **Enact and/or enforce water restrictions.** Water restrictions may be enacted at the state or county level and can include limitations in applications of water use, volume of usage, and timing of use. At the state level, restrictions follow the following stages:

  In Stage 1:
  - Shut-off nozzles are required on hoses for car washing.
  - Washing hard surfaces, such as power washing a driveway, is prohibited.
  - Runoff from landscape irrigation is prohibited.
  - Outdoor watering is prohibited within 48 hours of measurable rainfall.
  - Landscape watering of newly constructed homes is prohibited.
  - Decorative features, such as fountains, must use recirculated water.
  - Customers are required to repair leaks, breaks, and malfunctions in a timely manner.

  In Stage 2, earlier restrictions apply, plus:
  - The use of non-recirculating systems in all new conveyer car wash and commercial laundry systems is prohibited.
  - The use of single pass cooling systems in new connections is prohibited.
  - Restaurants may not serve water to customers unless requested.
  - Hotels and motels must offer guests an opt-out option for linen service.
  - Outdoor irrigation by residential and business customers is limited to 1-3 days per week, depending on local ordinances.

In Stage 3, earlier restrictions apply, plus:

- The use of potable water for construction and dust control is prohibited.
- The use of potable water for street washing is prohibited.
- The use of potable water for irrigation of ornamental turf on public street medians is prohibited.
- Filling of ornamental lakes or ponds is prohibited.

In Stage 4, earlier restrictions apply, plus:

- Vehicle washing, except with recirculated water or low-volume systems, is prohibited.
- Use of water for recreational purposes, such as water parks and the filling of pools, is prohibited.
- In Stage 5, earlier restrictions apply, plus:
- Net zero demand increase on new water service connections is required.
- Single-pass cooling systems are prohibited.

In Stage 6, earlier restrictions apply, plus:

- A moratorium on new water service connections is imposed.
- All landscape irrigation is prohibited.

- **Use alternate water supplies.** Water may be sourced from alternate sources during stabilization periods to meet increased demand and/or reduced supply.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- State and federal relief programs.
  - Drinking water assistance for households on a domestic well or a state small water system may find resources at https://www.waterboards.ca.gov/drought/drought_assistance.html
  - The Small Community Drought Relief Program provides assistance to communities and eligible Tribes that are not served by an urban water supplier. This is defined as one that supplies at least 3,000 connections or 3,000 acre-feet of water per year.
  - The State Water Efficiency and Enhancement Program (SWEEP) is a program for California farmers and ranchers. It funds projects that save water by increasing the efficiency of irrigation systems.
  - The Urban Community Drought Relief Program offers financial help to drought relief projects that:
    - Address impacts to health and human safety
    - Protect fish and wildlife
    - Provide water to those threatened with water loss or contamination

  Funding is available for Tribes, public agencies, public utilities, special districts, nonprofit organizations, mutual water companies, colleges, and regional water management groups.

- The State Water Board provides funding for projects that benefit drinking water systems or individual households to address drought-related urgent drinking water needs or long-term resilience. They partner with public agencies, tribal governments, water systems, and nonprofit organizations to develop and manage these projects, and these entities may be eligible to receive funding for the support they provide. This includes funding to counties or partner entities such as nonprofits to implement programs to address the needs of individual households served by state small water systems or domestic wells. More information can be found at https://www.waterboards.ca.gov/drought/funding_available.html
- **Implement mitigation projects.** Drought mitigation projects identified in the MJHMP or other plans can be implemented during recovery periods to protect supplies. Recovery is also a good time to identify future mitigation projects that may not be included in the current MJHMP.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from drought.

2.7.1 Lifeline Considerations

Energy

- Hydroelectric power losses may cause strain on power grids and increase the need for generator support.
- Drought will likely threaten fuel production, enhanced oil recovery, oil refining, and thermoelectric power generation, due to its reliance on surface water for cooling.

Food, Hydration, Shelter

- Drought impacts to aquaculture, agriculture, and pasture lands may result in losses that lead to decreased food availability, less food sovereignty, and increased food costs.

Health and Medical

- Drought affects air quality, especially when drier soils combine with windy conditions. Toxins in the soil can become airborne and cause lung irritation and adverse health effects in certain populations.
- Particulate matter from dried lakebeds can increase rates of chronic and acute diseases associated with air pollution, including reproductive dysfunction, developmental defects, cognitive impairment, cardiovascular damage, and cancer.

Safety and Security

- Responders may be at risk for decreased access to water resources during response operations.

- Animal migration (driven by reduced access to food and water in their natural ranges) into areas more densely populated by humans or into areas where responders are managing drought impacts may become problematic.
- Low flow or lack of water in remote streams and ponds will hamper wildland fire responses.
- Toxic dust may prompt additional personal protective equipment (PPE) needs in response and recovery operations.

Transportation

- During drought conditions that result in low water levels in rivers and other waterways, port and water-based transportation operations may be limited due to a reduction in available routes.

Water Systems

- Projected increases in temperature and drought frequency would further stress aquifers and other water supplies.
- Drought impacts to estuary environments (where salt water and freshwater meet) may impact drinking water quality as well as species conservation efforts and make certain agricultural areas unfarmable due to land salinity.

2.7.2 Equity Considerations

- Droughts significantly impact rural communities and local agriculture, which can drive farmers out of business. This can lead to inequitable cascading impacts on the cost of food for low-income communities.
- Droughts may impact households that rely on well water substantially more than households that rely on community water systems.
- Droughts can be accompanied by extreme heat or longer-than-normal heat events, increasing the risk to traditionally socially vulnerable populations (e.g., unhoused, populations with DAFN).

2.7.3 Climate Change

Climate change is expected to change the frequency and intensity of drought patterns. As Earth's average temperature rises, evaporation rates will increase, leading to more precipitation in some areas and less precipitation in others. Climate projections for the Southwest indicate that the region may experience chronic precipitation deficits, which will increase meteorological drought risk. Significant precipitation declines are not confidently projected outside of the Southwest; however, higher temperatures may increase the frequency and magnitude of agricultural droughts across the country in the future.

Drought increases can occur during all seasons of the year and are directly tied to changes in precipitation (seasonality, frequency, and intensity). When winter droughts occur, they happen when precipitation is already typically lower than other times of the year and do not generate negative impacts as readily as when droughts occur during the growing season.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

Drought response is managed under the auspices of the Solano County Drought Plan. The plan provides information on response organization and responsibilities for managing the response. Drought response is led by the Drought Task Force.

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in a drought response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Drought-related courses available through FEMA Independent Study are:

- No relevant training courses were identified.

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Drought-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- E0102: Science of Disasters

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- NWS Climate Services – Understanding Drought
- Environmental Protection Agency: Flood and Drought Resilience Training (available by emailing WICRD-Outreach@epa.gov)
- Any additional training mandated by state or federal regulations

To support the integration of individuals with disabilities and access and functional needs (DAFN) in incident response, training should incorporate DAFN community planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- National Integrated Drought Information System Reauthorization Act of 2018 (P.L. 115-423)
- Water Resources Reform and Development Act of 2014 (P.L. 113-121)

State

- California enacts emergency regulations to guide use. Current regulations in place may be viewed at https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/regs/emergency_regulation.html

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- Bureau of Reclamation. (2023). *WaterSMART: Drought Response Program*. Available at https://www.usbr.gov/drought/.
- National Integrated Drought Information System. (n.d.). *Hazard Planning and Preparedness*. Available at https://www.drought.gov/sectors/hazard-planning-preparedness.

State

- State of California. (2010). *California Drought Contingency Plan.* Available at https://drought.unl.edu/archive/plans/drought/state/CA_2010.pdf.
- National Integrated Drought Information System (NIDIS), California-Nevada Climate Applications Program (CNAP), and Western Regional Climate Center (WRCC). (2017). *California- Nevada Drought Early Warning Systems Strategic Plan.* Available at https://www.drought.gov/sites/default/files/2020-07/rpt-California-Nevada-DEWS-Strategic-Plan-2017-2018.pdf.

Local

- Solano County. (n.d.). *Drought.* Available at https://www.solanocounty.com/depts/oes/grs/summer_ready/drought/default.asp

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APPENDIX BB: EARTHQUAKE

Last Updated: April 2024

Incident/Unified Command	• Solano County Sheriff's Office • Solano County Fire Agency(ies)
Support Agencies and Organizations	• Solano Office of Emergency Services • Solano County Department of General Services • Solano County Department of Resource Management • Solano County Search and Rescue • Solano County VOAD • CalTrans • California Geological Services • Construction and Equipment Companies • Utility Companies

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Earthquake Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from earthquakes. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan, under which the County will respond and operate in the event of an earthquake.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding earthquake response.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from earthquakes.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of earthquake and for supporting a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano County's earthquake response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Manage a coordinated response effort.
- Minimize economic impacts.
- Keep the public informed of response activities.
- Reestablish self-sufficiency and essential services as quickly as possible.

1.2.2 Critical Tasks

During an earthquake response, critical tasks may include the following:

- Coordinate calls with key agencies to facilitate updates and to receive information on potential or actual impacts on lifeline services and critical facilities.
- Provide timely, verified, and actionable information to the public, and manage rumors and misinformation.
- Establish perimeters around areas of high risk and enact road closures on impacted roadways.
- Locate and rescue individuals who have been injured or trapped following the earthquake.
- Provide mass care and shelter for displaced individuals.
- Anticipate and accommodate the needs of vulnerable populations, including people with disabilities and access and functional needs (DAFN), and provide culturally relevant and inclusive information.
- Identify the availability of resources outside of the impacted area(s).
- Secure alternate communication methods due to outages or disruptions.
- Provide prompt restoration of lifeline services and critical facilities.
- Inspect and condemn damaged structures.

1.3 HAZARD SITUATION

1.3.1 General

An earthquake is the sudden shaking of the ground caused by the passage of seismic waves through the earth's rocks. Seismic waves are produced when masses of rock straining against one another abruptly fracture and "slip." This sudden fracture is usually caused by elastic strain that has built up in the rock from the constant motion of tectonic plates. These earthquakes are called tectonic earthquakes. Energy also can be released by other sources of elastic strain, gravity, and chemical reactions. Earthquakes occur most often along geologic faults, narrow zones where rock masses move in relation to one another.

It is important to understand that earthquake magnitude measures the physical size of an earthquake (it is related to the product of the length of fault that slipped, the width of the fault that slipped, and the how far one side of the fault slipped relative to the other side), which is not the same as earthquake shaking. While larger magnitude earthquakes tend to produce stronger shaking, shaking is highly variable. Even a moderate magnitude earthquake occurring in or near the Solano County region can cause strong shaking and result in deaths, casualties, property and environmental damage, and disruption of normal services and activities.

Neither the occurrence of an earthquake nor its severity can be predicted. Instead, scientists can only calculate the probability that a significant earthquake will occur in a specific area within a certain

number of years. Using that information, scientists can also calculate the probability that significant shaking will occur in a specific area within a certain number of years. Most of the county is susceptible to moderate-to-severe earthquake shaking, depending on the location, intensity, and magnitude of the earthquake (Figure 1).

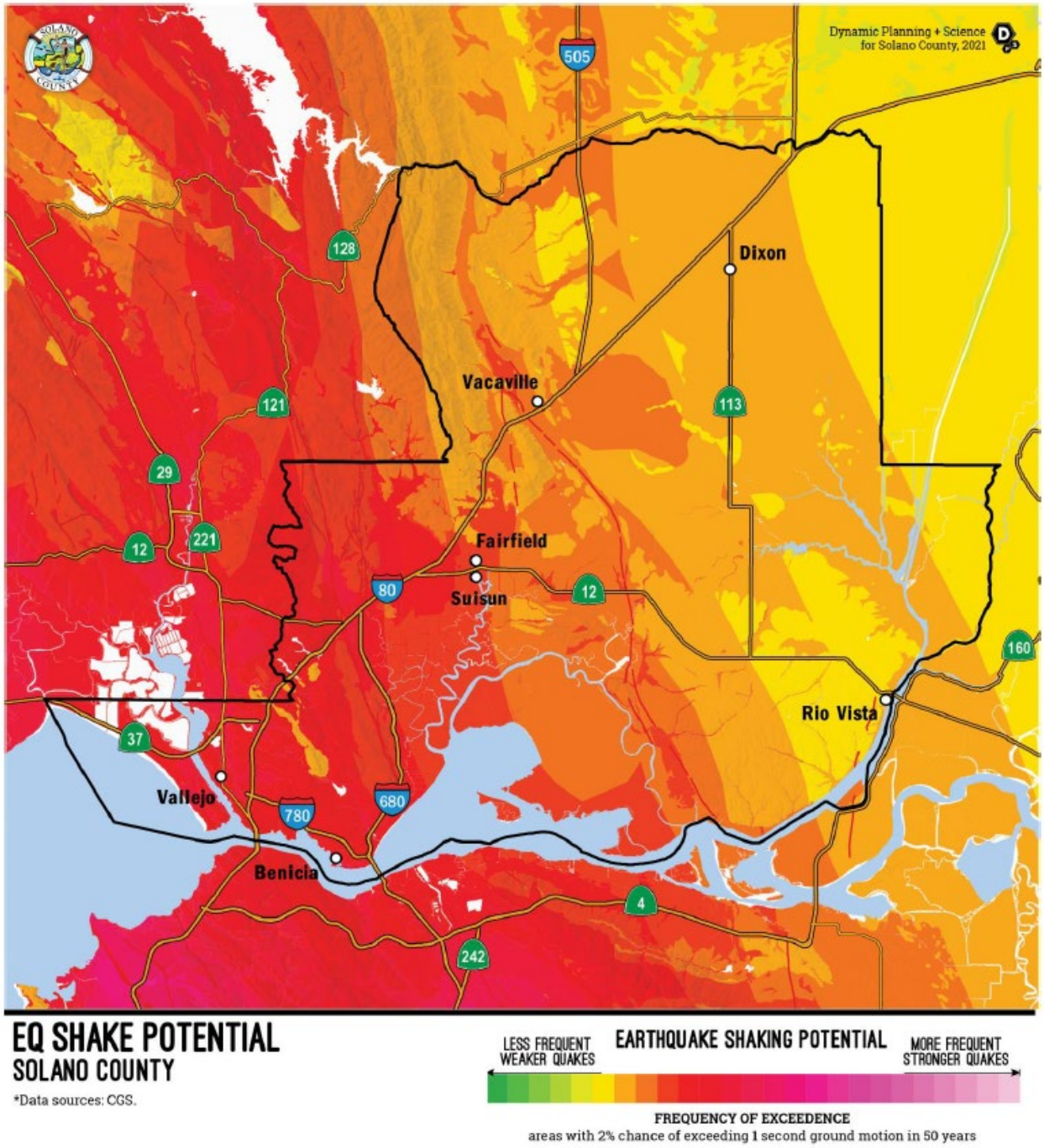

Figure 1: Earthquake Shake Potential in Solano County

This section is adapted from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding earthquakes in Solano may be found in the MJHMP: Volume 1.

1.3.2 Impacts

Earthquake incidents have the potential to cause the following impacts on community and public safety:

- Injury and loss of life
- Loss and damage to property, roads, bridges, and utilities
- Dam and levee failures or tsunami leading to flooding
- Structure flooding from ruptured water lines
- Destruction to agriculture and damage to vegetation
- Disruptions to government and privately provided services
- Environmental devastation
- Impacts on local industry and commerce
- Health hazards from ruptured sewage lines and damage to septic systems and methane or leachate collection systems
- Fires resulting from damaged power lines and gas mains

1.3.3 Cascading Hazards

Cascading hazards from an earthquake may include tsunami, fires, hazardous material spills, utility disruptions, landslides, transportation incidents, or inundation from levee failure.

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- Earthquakes can occur at any time and without warning.
- Earthquakes near the coast can generate tsunamis that impact coastal communities.
- Numerous aftershocks may occur directly after the mainshock and may continue for hours, days, weeks, months, and years afterward. Aftershocks can be stronger than the initial earthquake.
- The exact number and location of impacted structures will depend on the earthquake's size, location, duration, and frequency of occurrence.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

It is impossible to predict when an earthquake will happen. According to the California State Hazard Mitigation Plan, earthquakes large enough to cause moderate damage to structures—those of M5.5 or larger—occur 3-4 times a year statewide. Strong earthquakes of M6 to M6.9 strike on an average of once every 2-3 years. Major earthquakes of M7 to M7.9 occur in California about once every 10 years.

2.2.2 Notification, Confirmation, and Estimation of Earthquake Impacts and Aftershock Forecasts

Ground shaking is notification that an earthquake is happening.

ShakeAlert Notifications: The USGS-operated ShakeAlert Earthquake Early Warning (EEW) system detects an earthquake that has already started and estimates its location, magnitude and shaking intensity. If an earthquake becomes large enough to meet USGS alert thresholds, a ShakeAlert Message is issued. Then, technical partners, which have entered into a license agreement with the USGS, use this information produce and deliver an alert that prompts people to take a protective action, such as DROP, COVER, AND HOLD ON, and/or to trigger an automated action that can protect vital systems, equipment, facilities, and infrastructure. These automated actions could include slowing a train, closing valves, issuing a public announcement, and many others.

The ShakeAlert system takes a network approach to earthquake detection and alerting. This network uses sensors distributed over a wide area where earthquakes are likely to occur on the West Coast of the United States (with nearly 1,700 anticipated on network build-out). Data from individual sensors across large regions are combined to maximize accuracy and alerting time during moderate-to-large earthquakes.

More information on ShakeAlert can be found at https://www.usgs.gov/programs/earthquake-hazards/science/earthquake-early-warning-overview. Options for signing up for ShakeAlert alerts can be found at https://www.usgs.gov/faqs/how-do-i-sign-shakealertr-earthquake-early-warning-system.

In addition to the ShakeAlert system which aims to provide real-time warning of an ongoing earthquake before shaking arrives at a location, real-time notification of confirmed earthquakes is available through the USGS Earthquake Hazards Program Earthquake Notification Service (ENS) is a customizable system provided free to everyone. New accounts receive, by default, all earthquakes with magnitude 6.0 or greater; and can be subsequently customized to better fit individual needs. Information for earthquakes in the U.S. is generally available within five minutes. An account can be created at https://earthquake.usgs.gov/ens/.

Additional information:

Real-time and historical earthquake information, including earthquake location, size, depth, and timing, is available from the USGS Earthqukae Hazards Program at https://earthquake.usgs.gov/earthquakes/map/. This information can be used to confirm the details of an earthquake that has occurred.

The map at the link above shows real-time earthquake activity and allows access to each earthquake's "Event Page" which provides detailed information about that earthquake. For significant earthquakes, this information will be updated and expanded to include additional products such as:

- ShakeMap maps of shaking intensity
- PAGER (Prompt Assessment of Global Earthquakes for Response) rapid estimates of economic losses and fatalities (https://earthquake.usgs.gov/data/pager/faq.php)
- Aftershock forecasts

2.3 CONDUCT OF PUBLIC WARNING

EEW alerts can be delivered via internet, radio, television, dedicated emergency broadcast networks, and cellular networks via smartphone apps or the Federal Wireless Emergency Alert (WEA) System. The EEW system for California is relatively new and still under development, with new sensors continually being added.

Earthquakes may also trigger tsunami alerts. Tsunami notification messages are issued by the National Tsunami Warning Center (NTWC). More information about these is available in the *Flood Appendix*.

Solano OES is responsible for public alert and warning efforts during an incident. Detailed information is available in the *Public Information Alert and Warning Annex*.

2.4 PROTECTIVE ACTIONS

Protective actions to an earthquake are limited due to the immediate nature of the hazard. Individuals are encouraged to DROP, COVER, and HOLD to protect themselves:

- **Drop** where you are, onto your hands and knees. This position protects you from being knocked down and reduces your chances of being hit by falling or flying objects.
- **Cover** your head and neck with one arm and hand.

- If a sturdy table or desk is nearby, crawl underneath for shelter.
- If no shelter is nearby, crawl next to an interior wall.
- Stay on your knees; bend over to protect vital organs.

- **Hold** on until the shaking stops.
  - Under shelter: hold on to it with one hand; be ready to move with your shelter if it shifts.

No shelter: hold on to your head and neck with both arms and hands.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to earthquake include:

- **Firefighting.** It is common for fires to result from earthquakes. Crews should be prepared to respond to a multitude of business, home, and car fires. Resource limitation may require prioritization of incident response.
- **Search and rescue.** Specialized teams can employ sensitive sound equipment to detect movement within buildings, while tiny video devices may be used to locate people buried beneath the rubble, and carbon dioxide detectors and thermal imaging equipment can be used to find survivors, even if they are unconscious.
- **Medical aid.** EMS and rapid transport to appropriate level care facilities for residents, visitors, and first responders can be provided.
- **Medical surge.** Facilities should be prepared for triage. Planning should anticipate the need to handle large numbers of people who may or may not be injured but who are fearful about their medical well-being. Planning should consider the locations and capacities of medical care facilities within the jurisdiction and in surrounding jurisdictions, especially those with trauma care.
- **Utility restoration.** The rapid restoration of utilities is critical to stabilize the incident and prevent further deterioration of the incident. Shutting off gas lines to households can prevent gas leaks and fires.
- **Debris removal.** Debris from earthquakes can block roads and make access to portions of the community impassable.
- **Mass care.** Mass care, including shelter operations for populations displaced from the events of earthquakes, should be coordinated, and mobilized as quickly as possible.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** Accounting for the amounts of damage sustained to infrastructure should be completed as quickly as possible. This assessment should include not only the financial but also account for operational capacity.
- **Mass care.** Mass care, including shelter operations for populations displaced from the events of earthquakes, may need to be coordinated through CBOs for longer-term recovery operations.

- **Repopulation/reentry.** Providing structural damage evaluation and other safety clearances to open neighborhoods and business districts for repopulation is critical for housing and economic recovery.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from an earthquake.

2.7.1 Lifeline Considerations

Communications

- Broadband internet, cellular and landline telephone networks, cable services, satellite communications services, and broadcast networks (radio/television) infrastructure may be impacted, disrupting communications.
- Service disruptions may include alerts, warnings, and messages, 911 and dispatch, and access to financial services.

Energy

- Electricity service providers and generation, transmission, and distribution infrastructure may be impacted.
- Propane delivery infrastructure, including lines or transportation routes, may be damaged.
- Fuel may be unavailable due to damage to gas stations or transportation routes that allow fuel to be delivered.

Food, Hydration, Shelter

- Grocery stores may be closed, and transportation systems that support the distribution of food may be damaged or destroyed.
- Water treatment and distribution systems can be damaged or destroyed, limiting or eliminating accessible clean water. Boil water notices may be necessary, as may bottled water distribution.
- Housing is likely to be significantly impacted, creating the need for mass care and shelter operations. Unreinforced masonry buildings tend to be more vulnerable to earthquake damage than wood-framed buildings.

Hazardous Materials

- Earthquakes can damage facilities that generate or store hazardous substances, including industrial facilities and contaminated sites.
- Trucks carrying hazardous materials may overturn or crash, spilling hazardous materials onto community roadways.

Health and Medical

- It is likely that large numbers of individuals will be injured or killed, requiring activation of mass casualty plans at the County, municipal, and health care organization levels.
- Animals are likely to be injured or killed, requiring animal care support, including veterinary care.
- Air, water, and soil contamination is probable, and sampling may be needed to clear areas for reentry. Boil water notices may be implemented until infrastructure is confirmed to be fully restored.

Safety and Security

- Looting may be a concern in evacuated areas, and shelters will require additional security.
- Dispatch and 911 communication disruptions may impact public safety coordination and situational awareness.

Transportation

- Wide transportation network disruption is likely, including roadway, mass transit, railway, aviation, maritime, and intermodal systems.

2.7.2 Equity Considerations

Approximately 40% of the populations living in coastal counties fall into an elevated risk category. This includes children, the elderly, households where English is not the primary language, and those living in poverty.

Traffic delays from earthquakes are projected to disproportionately affect populations that are low income, are of minority status, and/or are of low education. Vulnerable populations are the least likely to have earthquake insurance, access to transportation during evacuations, cash on hand, or the ability to relocate. These traditionally socially vulnerable populations include those who have limited digital access, are unhoused, diverse populations, and those with DAFN (e.g., those dependent on durable medical devices).

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Solano County Sheriff's Office and impacted Solano County fire agencies typically take unified command of earthquake incidents and may be supported by the various departments, agencies, and organizations listed below. Earthquake incidents may cause activation of operational functions such as, but not limited to, mass fatality, mass care and shelter, and damage assessment. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for earthquake incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Solano County Sheriff's Office

Type: Government (County)	Role: Lead
Responsibilities	
Serve in Unified Command with Solano County fire agency(ies).	
Provide incident information in a timely and routinely manner to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.2 Solano County Fire Agencies

Type: Government (Special Jurisdiction)	Role: Lead
Responsibilities	
Serve in Unified Command with Solano County Sheriff's Office.	
Provide incident information in a timely and routinely manner to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.3 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	

Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.
Activate public alert and warning if necessary.
Coordinate the activation of the Joint Information Center (JIC) as needed.
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC will then: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. Provide coordination and facilitate policy direction.
Provide recommendation on the need for an emergency proclamation.

3.2.4 Department of General Services

Type: Government (County)	Role: Support
Responsibilities	
Support, along with utility companies, the reestablishment of sewer, water, and electricity.	
Provide a representative to serve in the EOC Public Works Unit to coordinate efforts and serve as an information conduit with public-private utility companies.	

3.2.5 Department of Resource Management

Type: Government (County)	Role: Support
Responsibilities	
Lead the damage and safety assessment function.	
Provide post-earthquake recovery permits and controls for repairs.	
Suggest and draft revised building regulations and codes to support recovery efforts	
Facilitate plan reviews.	

3.2.6 Solano County Search and Rescue

Type: Government (County)	Role: Support
Responsibilities	

Support fire protection districts with urban search and rescue (USAR) efforts.

3.2.7 Solano County Voluntary Organizations Active in Disaster (VOAD)

Type: Non-Governmental Organization	Role: Coordinate
Responsibilities	
Provide staff to serve in the EOC as point of contact to voluntary organizations.	
Assist with understanding the need for, recruitment of, and placement of affiliated volunteers to support response and short-term recovery efforts.	

3.2.8 Caltrans

Type: Government (State)	Role: Support
Responsibilities	
Facilitate damage assessments on state transportation routes.	
Provide timely restoration to prioritized transportation routes necessary to support lifelines.	

3.2.9 California Geological Services (CGS)

Type: Government (State)	Role: Support
Responsibilities	
Provide accurate and up-to-date information regarding fault and earthquake magnitude, to include likelihood of frequency and size of aftershocks.	

3.2.10 Construction and Equipment Companies

Type: Private Sector	Role: Support
Responsibilities	
Through contracts, MOUs, or in-kind support, provide staffing and equipment necessary to stabilize the incident, including prompt restoration of lifelines.	

3.2.11 Utility Companies

Type: Public or Private Sector	Role: Support
Responsibilities	
Facilitate damage assessments of utility infrastructure.	
Provide timely restoration of utilities necessary to support lifelines.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in an earthquake response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Earthquake-related courses available through FEMA Independent Study are:

- IS-8 Building for the Earthquakes of Tomorrow: Complying with Executive Order 12699
- IS-323 Earthquake Mitigation Basics for Mitigation Staff
- IS-325 Earthquake Basics: Science, Risk, and Mitigation

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Earthquake-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- E/L0312 Fundamentals of Building Science

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- ATC-20 Post Earthquake Safety Evaluation of Buildings
- Building Code Overview: Building Codes – Why They Matter
- Classroom and Beyond: Reducing Earthquake Risk in the Classroom and Beyond: Seismic Mitigation of Nonstructural Hazards in Schools
- FEMA E-74, Reducing the Risks of Nonstructural Earthquake Damage
- FEMA 232, Homebuilder's Guide to Earthquake-Resistant Design and Construction
- FEMA 395, Earthquake Safety and Mitigation for Schools
- FEMA P-767 Earthquake Mitigation for Hospitals
- FEMA P-909 Home and Business Earthquake Safety and Mitigation: Train the Trainer
- FEMA P-1000, Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- 2016 Federal Earthquake Risk Management Standard

Local

- Solano County Land Use Planning Regulations

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Local

- On Shaky Ground, Association of Bay Area Governments (ABAG) Earthquake and Hazards Program
- Cal OES Bay Area Earthquake Plan, July 2016

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APPENDIX CC: EXTREME WEATHER

Last Updated: April 2024

Incident/Unified Command	• Solano County Public Works • Solano County Fire Agency(ies)
Support Agencies and Organizations	• Solano Office of Emergency Services • National Weather Service • Power Utility Companies

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Extreme Weather Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agency responsibilities, and resources to mitigate against, prepare for, respond to, and recover from extreme weather incidents. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of extreme weather.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding extreme weather incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from extreme weather incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of extreme weather and to support a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's extreme weather response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Manage coordinated response effort.
- Protect environmentally sensitive areas.
- Minimize economic impacts.
- Reestablish essential services.
- Keep the public informed of response activities and necessary individual and household protective activities.

1.2.2 Critical Tasks

During an extreme weather response, critical tasks may include the following:

- Coordinate calls with key agencies to facilitate weather updates and spot forecasting and receive information on potential or actual impacts on lifeline services and critical facilities.
- Anticipate and accommodate the needs of socially vulnerable populations, including individuals with disabilities and access and functional needs (DAFN), and provide culturally relevant and inclusive information and services.
- Provide timely, verified, culturally competent, and actionable information to the public, and manage rumors and misinformation.
- Evacuate individuals within potentially affected areas and provide mass care and shelter.
- Establish perimeters around areas of high risk and enact road closures on threatened or impacted roadways.
- Provide prompt restoration of lifeline services and critical facilities.

1.3 HAZARD SITUATION

1.3.1 General

Extreme weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. Extreme weather may form over wide areas of the county. There are three types of extreme weather events that typically impact Solano County:

- **High Wind:** Damaging winds are classified as those exceeding 60 mph. Damage from such winds account for half of all extreme weather reports in the lower 48 states and is more common than damage from tornadoes. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles.
- **Heavy Rain:** Heavy rain can lead to flooding even on dry soil and especially on impervious surfaces. In urban areas, direct runoff is relatively extensive, not only because of the density of roofs and impermeable pavements, which allows less rain to infiltrate the ground, but also because storm-sewer systems carry more water directly to streams and lakes. The average annual rainfall in Solano County is about 28 inches. Most of the precipitation falls during the winter, and substantial snowfall is limited to higher elevations. Atmospheric rivers that originate from the tropical regions carry more moisture and could result in heavy rain and flooding. Virtually no rainfall occurs during the summer months.
- **Extreme Temperature:** Extreme heat or cold are periods of abnormally hot or cold weather lasting days to weeks. The number of extreme temperature events has been increasing in recent years across the United States (U.S.) and locally. Climate change will continue to cause extreme temperatures events more often. All three types of weather events are possible throughout the county and are likely to impact the majority or all the county, if present.

Information from this section was taken from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding extreme weather in Solano County may be found in the MJHMP: Volume 1.

1.3.2 Impacts

Extreme weather incidents have the potential to cause the following impacts on community and public safety:

- Injury and loss of life
- Overload of first responders due to response to numerous small incidents (e.g., downed power lines, minor flooding) or a large incident (e.g., flooding at a health care facility)
- Infrastructure damage, including transportation routes
- Inability of first responders to reach some geographical locations
- Disruption of emergency and public communications (e.g., internet and cell outages)
- Extended power outages
- Hazardous waste contamination in urban and riverine areas
- Impacts on water quality
- Environmental damage

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- A changing climate is likely to further increase the frequency and size of extreme weather-related hazards.
- Extreme weather may impact a large geographic area that may not be limited to Solano County.
- The diverse nature of extreme weather poses a challenge to maintaining adequate monitoring of potential threats.
- Timely and accurate notifications to the public of impending hazardous weather events or those which have occurred may save lives, decrease injuries, and reduce some types of property damage. Provisions must be made to provide notifications to those in the DAFN population, such as the hearing- and sight-impaired and institutions (e.g., nursing homes and correctional facilities).
- The fast-moving nature of extreme weather requires constant monitoring of conditions to provide an adequate response.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

For cascading hazards such as flooding or power outages, refer to the associated appendices for additional information.

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant extreme weather incident include:

- Prolonged rainfall and storms
- Changes to the jet stream
- Severe temperature fluctuations or prolonged periods of extreme temperatures
- Weather forecasts

2.2.2 Notification or Confirmation

Notification or confirmation of a significant extreme weather event will most often come from the National Weather Service (NWS). The NWS may hold weather briefings with local emergency managers when hazardous weather is forecast.

2.3 CONDUCT OF PUBLIC WARNING

Advisories, watches, and warnings are non-routine products issued by the NWS. These products advise the public of meteorological events that could pose a threat to life and property.

- **Advisory.** For less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property.
- **Watch.** Issued when the risk of hazardous weather or hydrological event has increased significantly but its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so those who need to set their plans in motion can do so. Watches will either evolve into warnings or advisories or be canceled if the conditions dissipate.

- **Warning.** Issued when hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurrence. It is used for conditions posing a threat to life or property. The NWS is the single "official" voice when issuing warnings for life-threatening situations.

The NWS will issue advisories, alerts, and warnings directly to the public through radio and television broadcasts as well as National Oceanic and Atmospheric Administration (NOAA) weather radio alerts. NWS is also able to leverage social media and other platforms to assist the County in targeted public messaging, including the creation of public information products.

If a PSPS is enacted, power companies will provide alert and warning and ongoing messaging related to the PSPS incident.

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to an extreme weather threat include:

- **Public Information.** Public messaging should be timely and actionable, providing residents and visitors with the information they can use to mitigate against or respond to impacts of extreme weather. This may include information about public safety power shutoffs (PSPS), locations of heating/cooling centers, and recommendations to shelter-in-place for hazardous weather. Information may have to be delivered using alternative methods, such as door-to-door notification, community message boards, or traplines if communication systems are impacted.
- **Heating or Cooling Centers.** Heating or cooling centers may be activated to provide the public with areas to escape from extreme temperatures. These centers should remain open during critical periods of extreme temperatures. Transportation may need to be provided for individuals in the DAFN population, including those that are transportation challenged.
- **Shelter-in-Place.** Residents and visitors may be advised to shelter-in-place and to avoid travel during extreme weather. Recommendations may be included to stock up on essential items such as water, nonperishable foods, gasoline, and batteries. Shelter-in-place should remain until the threat(s) (e.g., flying debris from winds, flood roadways, etc.) has resolved.
- **Public Safety Power Shutoff (PSPS).** High winds can bring tree branches and debris into contact with energized lines, damage equipment, and ignite wildfires. High heat exacerbates the threat. As a result, power companies may need to turn off power during extreme weather to help prevent wildfires. During PSPS events, power companies are required to provide public alert and warning, ongoing public information, support for residential customers who rely on power for

certain medical needs, and Community Resource Centers (a safe location with resources such as device charging, Wi-Fi, restrooms, and bottled water and snacks).

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to extreme weather include:

- **Utility restoration.** Rapid utility restoration is critical for incident stabilization and to reduce cascading effects.
- **Debris removal.** Debris flows can impede traffic as well as block drainages, leading to subsequent flooding or transportation issues for response partners.
- **Decontamination.** Decontamination efforts led by trained personnel in the wake of a chemical, biological, or radiological spill caused by severe weather. All response personnel should be trained in incident response and follow the most up-to-date proper protocols and procedures.
- **Mass care.** Mass care, including shelter operations for populations displaced from the events of extreme weather, should be coordinated and mobilized as quickly as possible.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessment.** A thorough accounting of damage to the impacted area should be completed as quickly as possible. This assessment should include not only the financial impact but also account for operational capacity.
- **Debris management.** Debris removal in impacted areas may be needed to restore property and the environment. Public information for cleanup will need to be shared with individuals and households in the affected area.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from extreme weather.

2.7.1 Lifeline Considerations

Communications

- The flooding and winds associated with coastal storms have the capacity to damage critical communications systems.
- Extreme flooding or severe weather may impact communications infrastructure due to damage or loss of power.

Energy

- Transmission line capacity will decline at higher temperatures, reducing power availability; extreme heat may also cause power lines to droop. Extreme cold may include ice accumulation, presenting an increased chance of power failures along power lines.
- Extreme temperatures increase demand for cooling and heating capabilities, which may result in electricity shortfalls.
- Climate-related incidents, such as increases in extreme heat and wildfires, will increase the likelihood of public safety power shutoffs, limiting access to power.
- Extreme flooding or severe weather will threaten energy infrastructure.

Food, Hydration, Shelter

- Extreme temperatures may increase the need for temporary shelters, cooling centers, warming centers, and water distribution missions.
- Temperature and precipitation extremes may affect water quality and availability, agricultural productivity, and ecosystems and species.
- The intersection of flooding and warmer weather may cause bacterial growth in local water sources, leading to health concerns (e.g., toxic algae blooms).
- Extreme low temperatures may cause freezing water lines and disruptions in service.

Health and Medical

- Extreme heat often results in the highest annual number of deaths among all weather-related incidents.
- Temperatures may exacerbate existing illnesses, such as asthma and cardiovascular disease.
- Hospitals may need to prepare for providing temperature-related illness treatments.
- If extreme heat causes power outages, access to specific treatments, such as dialysis, may be limited.
- Increasing temperatures may cause degradation of air quality, exacerbating health conditions such as heart disease.
- Extreme weather events are associated with an increased risk of food- and water-borne illnesses, as sanitation services, hygiene measures, and safe food and water supplies are often compromised after such events.

Safety and Security

- Responders and survivors may be at risk for temperature-related illnesses during response operations.
- Response personnel should consider elements like available shade and ground cover materials (e.g., pavement vs. grass) in extreme heat scenarios.
- Response personnel should consider elements like available shelter and warming capabilities in extreme cold scenarios, including impacts on equipment.

Transportation

- When possible, responders should identify multiple modes of transportation and routes when traveling to and from response locations and staging areas due to potential inaccessibility from warped rail tracks, overheated/damaged concrete or asphalt, etc.
- Flooded roadways may limit the ability for response resources to be transported to impacted locations.

2.7.2 Equity Considerations

Historically, underserved and marginalized communities may experience more severe impacts from extreme temperatures than other populations, both in terms of infrastructure impacts and health impacts.

Socially vulnerable populations, including individuals with medical conditions and those with disabilities as well as children, older adults, unhoused persons, agricultural and other outdoor workers, marginalized racial groups, lower-income persons, incarcerated persons, and persons without air conditioning, heat, or basic shelter from the elements, may be at a higher risk for temperature-related illness or death.

Approximately 40% of the populations living in coastal counties fall into an elevated risk category. This includes children, the elderly, households where English is not the primary language, and those living in poverty.

The California Department of Public Health provides guidance on priority populations during extreme temperature incidents. The populations include but are not limited to:

- People without electricity
- People experiencing homelessness
- People living in single room occupancy hotels
- People without digital access
- People living in geographic areas where homes historically have not needed or do not have air conditioning, cooling, and air purification
- People with disabilities and access and functional needs
- Homebound people
- Pregnant people
- People who are socially and/or linguistically isolated
- People with substance use disorder and/or mental illness
- Infants and very young children
- Elderly and aging populations

2.7.3 Climate Change

1.1.1.1 Extreme Temperatures

Changes in the number of extreme temperature incidents are a notable impact of climate change. Over the past 60 years, heat waves have increased in duration, frequency, and intensity; research shows that the trend toward longer and more intense heat waves will continue. In addition, the average "season" for heat waves has increased by 47 days across 50 major U.S. cities since the 1960s. These urban areas are also susceptible to the heat island effect, in which temperatures within cities are higher than in outlying areas due to factors such as loss of vegetation and the prevalence of pavement, buildings, and concentrated human activity. Research also points to the existence of intraurban heat islands, a phenomenon in which certain neighborhoods or areas within a municipality experience higher temperatures than others.

Researchers and scientists are finding evidence that climate change – in particular the warming of the Arctic Ocean – is destabilizing weather patterns, including both the jet stream and the polar vortex. As a result, the polar vortex is pushed south into areas that are not accustomed to or prepared for extreme cold. These cold temperatures, in turn, cause precipitation that would normally fall as rain to fall as ice or snow – a particularly dangerous phenomenon in areas that don't have sufficient equipment to maintain roads and highways during ice or snowstorms.

1.1.1.2 Storms (High Winds and Rain)

Sea levels are rising as oceans warm and expand. This expansion, combined with the melting of land-based ice, has caused the global average sea level to rise by roughly 7 to 8 inches since 1900 – a trend that is expected to accelerate over the coming decades. Higher sea levels give coastal storm surges a higher starting point when a major storm approaches. The resulting storm surges are therefore able to reach higher levels and penetrate further inland in low-lying areas. The risk is even greater if storms make landfall during periods of high tide and king tides.

A coastal storm's ability to produce rain is affected by the temperatures of both the air and ocean. Warm air can hold more moisture and more moisture often leads to more rain. Since the 1970s, rising air temperatures have caused the water vapor content in the atmosphere to rise. Coastal storm rainfall rates are projected to increase in the future due to a warming climate and the accompanying increase in atmospheric moisture content. Modeling studies project an increase on the order of 10-15% for rainfall rates, averaged within about 100 km of a storm, in a 2-degree Celsius global warming scenario.

The increasing strength of coastal storms is causing greater damage, and increased development in coastal areas is leading to growing property risk. From 1970 to 2010, the total population of coastal counties increased by approximately 40%.

Because the area of warming ocean waters is expanding, the zone where hurricanes can form is also growing. That could mean more storms forming and making landfall in higher latitudes than has been historically recorded.

2.7.4 Other Considerations

Anticipated increases in the frequency and intensity of weather events will pose a heightened risk to the protection of cultural heritage resources, which in recovery operations, are the shared responsibility of the FEMA EHP, HENTF, and the Natural and Cultural Resources Recovery Support Function (RSF).

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Solano Public Works and relevant Solano County fire agencies typically take unified command of extreme weather incidents and may be supported by the various departments, agencies, and organizations listed below. Extreme weather incidents may cause activation of operational functions such as, but not limited to, public health and medical, public information alert and warning, and damage assessment. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for extreme weather incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

Solano County Public Works

Type: Government (County)	Role: Lead
Responsibilities	
Serve in Unified Command with the relevant Solano County fire agency(ies).	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.1 Solano County Fire Agencies

Type: Government (Special Jurisdiction)	Role: Lead
Responsibilities	
Serve in Unified Command with the relevant Solano County Public Works.	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize SitReps provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.2 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.	
Provide recommendation on the need for an emergency proclamation.	

3.2.3 National Weather Service

Type: Government (Federal)	Role: Support
Responsibilities	
Provide weather forecasts and weather briefings.	
Provide public alert and warning for extreme weather.	

3.2.4 Power Utilities

Type: Public/Private Utility	Role: Support
Responsibilities	
Alert customers of potential power disruptions.	
Support customers impacted by power disruptions.	
Assist customers who are dependent on power for life-sustaining medical devices and other individuals within the DAFN community through various programs.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in an extreme weather response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Extreme weather-related courses available through FEMA Independent Study are:

- IS-271 Anticipating Hazardous Weather and Community Risk

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Extreme weather-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- E0102 The Science of Disasters
- G0271 Hazardous Weather and Flooding Preparedness
- G0272 Warning Coordination
- G0365 WEM: Partnerships for Creating and Maintaining Spotter Groups

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- COMET - MetEd Emergency Management Training
- Dual-Polarization Radar Training for NWS Partners
- Emergency Managers Weather Information Network (EMWIN)
- Enhanced Fujita Scale Training
- Anticipating Hazardous Weather and Community Risk, 2nd Edition
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

- No hazard-specific authorities were identified for this plan.

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- United States Environmental Protection Agency (EPA) (2016). *Excessive Heat Events Guidebook.* Available at https://www.epa.gov/sites/default/files/2016-03/documents/eheguide_final.pdfState
- FEMA (2023). Response and Recovery Climate Change Planning Guidance. Available at https://www.fema.gov/sites/default/files/documents/fema_response-recovery_climate-change-planning-guidance_20230630.pdf
- National Weather Service. *Heat Risk Forecast Tool.* Available at https://www.wrh.noaa.gov/wrh/heatrisk/
- Occupational Health and Safety Administration/NIOSH. *Heat Safety Tool App.* Available at https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

State

- Cal OES (2022). *Extreme Temperature Response Plan*. Available at https://www.caloes.ca.gov/wp-content/uploads/2023/07/Extreme-Temperature-Response-Plan-2022.pdf

- CDPH (2022). *Extreme Heat and Health: Recommendations and Resources for Local Health Jurisdictions and Local Responders / Service Providers.* Available at https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/Extreme-Heat-Guidance-9-8-22.aspx
- CDPH (2023). *CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat.* Available at https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx
- CDPH (2023). *Extreme Heat.* Available at https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/BI_Natural-Disasters_Extreme-Heat.aspx
- Cal/OSHA. *Heat Illness Prevention.* Available at https://www.99calor.org/english.html
- California Healthy Places Index: Extreme Heat Edition. Available at https://heat.healthyplacesindex.org/

Local

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APPENDIX DD: FLOOD

Last Updated: April 2024

Incident/Unified Command	• Solano County Sheriff's Office • Solano County Fire Agency(ies)
Support Agencies and Organizations	• Solano Office of Emergency Services • Resource Management Department – Public Works Division • Solano County Water Agency • Levee Maintaining Agencies • Reclamation Districts • Resource Conservation Districts • California Department of Water Resources • National Weather Service • US Army Corps of Engineers

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Flood Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agency responsibilities, and resources to mitigate against, prepare for, respond to, and recover from flood incidents in Solano County. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of a flood.
- Identify roles and responsibilities of County departments, agencies, and partners specifically regarding flood incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from flood incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of flood incidents and to support a multijurisdictional or complex response with municipalities within the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's flood response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Manage a coordinated response effort.
- Maintain warning and incident response systems.
- Protect environmentally sensitive areas.
- Minimize economic impacts.
- Reestablish essential services.
- Keep the public informed of response activities.

1.2.2 Critical Tasks

During a flood response, critical tasks may include the following:

- Engage subject matter experts to understand the scope and severity of the threat.
- Provide timely, verified, culturally competent, and actionable information to the public, and manage rumors and misinformation.
- Evacuate individuals at risk of flood inundation and provide mass care and shelter.
- Anticipate and accommodate the accessibility needs of vulnerable populations, including diverse populations and people with disabilities and access and functional needs (DAFN), and provide culturally relevant and inclusive information.
- Establish perimeters around areas of high risk and enact road closures on threatened or impacted roadways.
- Provide prompt restoration of lifeline services and critical facilities.

1.3 HAZARD SITUATION

1.3.1 General

Flooding is an overflow of water that submerges land that is usually dry. Within Solano County, flood types include riverine, flash, urban stormwater, levee or canal, and coastal delta flooding. Regardless of the type, the cause is primarily the result of extreme weather and excessive rainfall, either in the flood area or upstream reach. There are dams in the county which, if breached, may cause flooding to downstream areas in the county, and may also include dams located in surrounding counties that drain into the county. These susceptible dams include the dams at Lake Madigan, Lake Curry, and Lake Frey. Tsunami mapping shows that the county is at minimal risk for tsunami flooding, and general flood preparedness and response measures have been deemed sufficient to address this hazard. Floods are most likely to occur from November through May when rainfall is at its greatest. Figure 1 depicts FEMA flood zones within Solano County. A more detailed depiction is available through the Risk Assessment Mapping Platform (RAMP) which can be accessed at https://mitigatehazards.com/solanohmp/ramp/

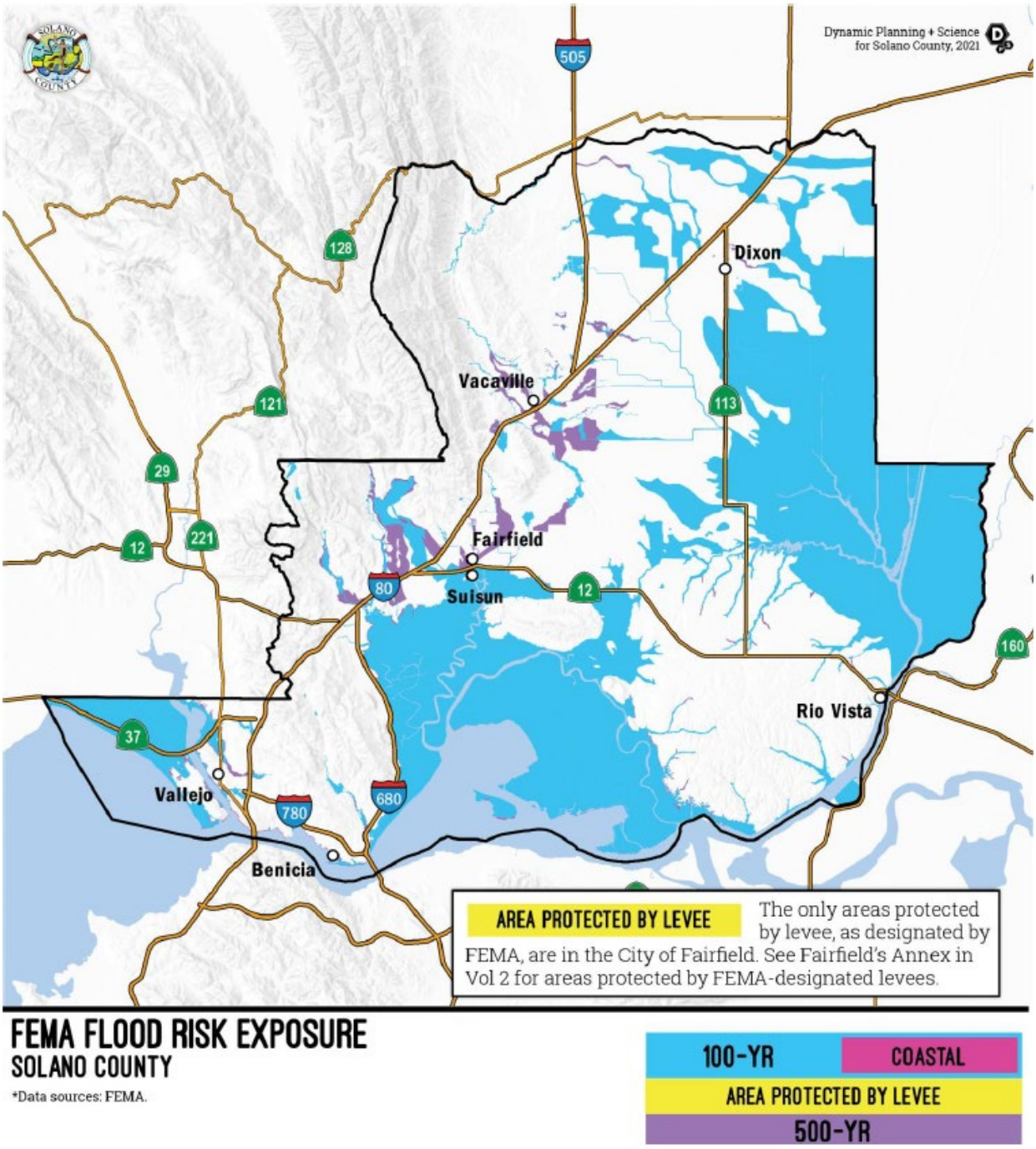

Figure 2: FEMA flood zones in Solano County (source: Solano MJHMP)

Information from this section was taken from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding flooding in Solano County may be found in the MJHMP Volume 1.

1.3.2 Impacts

Flood incidents have the potential to cause the following impacts on community and public safety:

- Injury and loss of life
- Loss and damage to property, roads, bridges, and utilities (water, sewer, power, and other essential services) and levees.
- Damage to vegetation
- Disruptions to government and privately provided services
- Repercussions on local industry and commerce
- Health hazards from ruptured sewage lines and damage to septic systems
- High costs associated with flood-fighting services, clean-up operations, and repairs to damaged infrastructure

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- In most circumstances flood conditions build up over time, allowing time for preventative actions and evacuations; early monitoring, activation, and action help prevent loss of life.
- Flood incidents are most likely to occur in the fall, winter, and spring due to heavy rains, melting snow, and spring run-off.
- Major flood incidents may pose serious threats to public health, property, the environment, and the local economy.
- Major flood incidents may result in significant utility and transportation interruptions that may complicate other response operations.
- Major flood incidents may require a multijurisdictional response to municipalities within the Solano County OA and neighboring counties.
- Response activities guided by this Appendix will be conducted in an inclusive, culturally competent manner to ensure that all affected individuals in the county are effectively served with fair and equitable treatment.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant flood incident include:

- Excessive rainfall and severe storms.
- Rapid melting of snow and ice.
- Runoff buildups from smaller and larger creeks and streams.
- Excessive water build-ups in flood-prone areas.
- Water levels nearing the capacity of a dam or levee.
- Cracks and seeps in levees and dams.
- A large, offshore earthquake or verified tsunami incident.

2.2.2 Notification or Confirmation

Notification or confirmation of a significant flood event will most often come from the National Weather Service (NWS). Flood notifications or confirmation may also be provided by the Solano County Water Agency (SCWA).

2.3 CONDUCT OF PUBLIC WARNING

The NWS issues the following types of flood watches and warnings:

2.3.1 Riverine Floods

- **Flood Watch: Be Prepared.** A Flood Watch is issued when conditions are favorable for a specific hazardous weather event to occur. A Flood Watch is issued when conditions are favorable for flooding. It does not mean flooding will occur, but it is possible.
- **Flood Advisory: Be Aware.** A Flood Advisory is issued when a specific weather event that is forecast to occur may become a nuisance. A Flood Advisory is issued when flooding is not expected to be bad enough to issue a warning. However, it may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.
- **Flood Warning: Take Action!** A Flood Warning is issued when a hazardous weather event is imminent or already happening. A Flood Warning is issued when flooding is imminent or occurring.
- **Flash Flood Warning: Take Action!** A Flash Flood Warning is issued when a flash flood is imminent or occurring. If you are in a flood prone area, move immediately to high ground. A

flash flood is a sudden violent flood that can take from minutes to hours to develop. It is even possible to experience a flash flood in areas not immediately receiving rain.

Each Flash Flood Warning will contain individual lines that clearly state hazard, source, and impact information. Flash Flood Warnings that require immediate life-saving action (damage threat tags of "Considerable" or "Catastrophic") automatically trigger Wireless Emergency Alerts (WEAs).

2.3.2 Tsunami Notifications

Tsunami notification messages are issued by the National Tsunami Warning Center (NTWC) as follows:

- **Tsunami Warning: Take Action.** Danger! A tsunami that may cause widespread flooding is expected or occurring. Dangerous coastal flooding and powerful currents are possible and may continue for several hours or days after initial arrival.
- **Tsunami Advisory: Take Action**. A tsunami with the potential for strong currents or waves dangerous to those in or very near the water is expected or occurring. There may be flooding of beach and harbor areas.
- **Tsunami Watch: Be Prepared**. An earthquake has occurred. A tsunami is possible.
- **Tsunami Information Statement: Relax**. An earthquake has occurred, but there is no threat or it was far away, and the threat has not been determined. In most cases, there is no threat of a destructive tsunami.

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to a flood threat include:

- **Evacuations.** Evacuations should be implemented whenever indicators for flood and/or dam failure incidents have been observed and pose threats to life and infrastructure. These evacuations should stay in place until experts have certified that the affected areas no longer pose a threat to life and infrastructure.
- **Road closures / perimeter establishment.** Road closures / perimeter establishments should be put in place when indicators for flood and/or dam failure incidents have been observed and pose a threat to life and infrastructure. These road closures / perimeter establishments should remain in place until experts have certified that the affected areas no longer pose a threat to life and infrastructure.
- **Capacity releases of dams and levees.** Dams and levees that are at threat of failure or overtopping should have controlled release by the responsible party as designated in Emergency Action Plans (EAPs), not to exceed the maximum allowed release criteria of the dam or levee. These coordinated releases should be coordinated with local responders and may involve the U.S. Army Corps of Engineers.
- **Sandbagging and water barriers.** Sandbags and water barrier devices should be deployed to areas to direct the controlled flow of water and to protect critical areas and infrastructure from flooding.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to flooding include:

- **Utility restoration.** The rapid restoration of utilities is critical to stabilize and prevent the incident and prevent further deterioration of the incident.
- **Debris removal.** Debris from flooding can block drainage and roads and cause flooding in other areas. Debris removal is critical to stabilize and prevent further deterioration of the incident.
- **Decontamination.** Decontamination may be needed following a chemical, biological, or radiological spill. All County response personnel must be trained in incident response and follow the most up-to-date proper protocols and procedures.
- **Boil notices.** Boil notices may be issued to support public health when water systems are compromised.
- **Rescue operations.** Rescue operations, such as swift water rescue, may be needed to support public safety and protect life.
- **Mass care.** Mass care, including shelter operations for populations displaced from the events of flooding and/or dam failure, should be coordinated and mobilized as quickly as possible. Mass care operations must be accessible and inclusive for all, and shelter site and operations must be ADA compliant.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** Accounting for the amount of damage sustained to infrastructure should be completed as quickly as possible. This assessment should include not only the financial but also account for operational capacity.
- **Debris management.** Debris removal in impacted areas may be needed to restore property and the environment. Public information for cleanup will need to be shared with individuals and households in the affected area.
- **Temporary housing.** To restore shelter facilities to their originally intended functions, the County must help stranded residents find temporary housing.
- **Repopulation.** Providing structural damage evaluation and other safety clearances to open neighborhoods and business districts for repopulation is critical for housing and economic recovery.
- **NFIP insurance claim.** If an NFIP policy is in force, financial recovery for homeowners, renters, businesses, and public entities can benefit from filing an NFIP claim as appropriate for each instance of flooding that may occur on their property.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from a flood incident.

2.7.1 Lifeline Considerations

Communications

- Buried fiber optic cables and nodes, which provide internet and communication services, are at risk due to anticipated sea level rise. These nodes are often clustered at low elevations around dense populations. Fiber buried on land is water- and weather-resistant but is not designed to be submerged.

Energy

- Coastal flooding, including wave action and storm surges, may affect gas and electric asset performance, cause asset damage and failure, and disrupt energy generation, transmission, and distribution.
- A sea level rise of just 3.3 feet could expose dozens of power plants to a greater risk of experiencing a 100-year flood scenario.
- Extreme rainfall may lead to flash floods that undermine power line foundations and pipeline crossings and inundate riverbank energy facilities, such as power plants, substations, transformers, and refineries.

Food, Hydration, Shelter

- Flood damage to homes may prompt the need for FEMA Individuals and Households Program (IHP) support.
- As sea levels continue to rise, saltwater and contaminated water infiltration into groundwater resources may reduce the availability of fresh water.

Hazardous Materials

- High lake levels and strong storms could impact several industrial facilities, contaminated sites, and communities.

Health and Medical

- Floodwaters may be contaminated with harmful chemicals, waste, or debris.
- Floodwaters may contain sewage, which can cause diarrheal disease through exposure to E. coli or salmonella if anything contaminated with such floodwaters is consumed.

Safety and Security

- Flood-related injuries and fatalities are often caused by vehicle use during flood events.
- If County capabilities are overwhelmed, it may request Urban Search & Rescue (US&R) task force support to assist with water rescues.

Transportation

- Flooded roadways may limit the ability for response resources to be transported to impacted locations.

2.7.2 Equity Considerations

Approximately 40% of the populations living in coastal counties fall into an elevated risk category. This includes children, the elderly, culturally diverse populations, households where English is not the primary language, those living in poverty, and populations with DAFN.

Traffic delays from high tide flooding are projected to disproportionately affect populations that are low income, are of minority status, and/or have no high school diploma.

Socially vulnerable populations are the least likely to have flood insurance, access to transportation during evacuations, cash on hand, or the ability to relocate.

2.7.3 Climate Change

1.1.1.3 Coastal Flooding

Coastal flooding is expected to worsen significantly in the next 30 years due to sea level rise. Sea levels are estimated to rise between 10 to 12 inches by 2050, resulting in a 10-fold increase in damaging coastal floods when compared to today's flooding frequency.

In California, half a million people and $100 billion worth of coastal property are at risk over the next 100 years. The more uncertain impacts of coastal flooding on the West Coast are how wave runup and coastal erosion will affect future base flood elevations (BFEs) and velocity zones. Research shows that there is a nonlinear response of BFEs along bluffed or hardened shorelines from incremental sea level rise. Local studies are needed to determine local BFE responses to sea level rise, making it difficult to map future BFEs consistently on the West Coast.

1.1.1.4 Inland Flooding

Climate scientists have predicted that periods of heavy rain will become more common as Earth heats up. The amount of rain falling in the heaviest rainstorms has increased across the country. Floodplain inundation is expected to increase by approximately 45% by the end of the century.

In regions where seasonal snowmelt plays a significant role in the annual runoff, hotter temperatures can trigger more rain-on-snow events, with warm rains inducing faster and earlier melting. The

combination of rain and melting snow can exacerbate spring flooding, as winter and spring soils are typically high in moisture and often still frozen and therefore less able to absorb runoff. Regions with higher numbers of rain-on-snow events are expected to see higher flooding risks.

2.7.4 Other Considerations

Mudslides develop when water rapidly accumulates in the ground and results in a surge of water-saturated rock and debris. Areas where wildfires or human modification of the land have destroyed vegetation on slopes are particularly vulnerable to landslides during and after heavy rains.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Solano County Sheriff's Office and relevant Solano County fire agencies typically take unified command of flood incidents and may be supported by the various departments, agencies, and organizations listed below. Flood incidents may cause activation of operational functions such as, but not limited to, protective actions, mass care and shelter, and public health and medical. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for flood incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Solano County Sheriff's Office

Type: Government (County)	Role: Lead
Responsibilities	
Serve in Unified Command with the relevant Solano County fire agency(ies).	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.2 Solano County Fire Agencies

Type: Government (Special District)	Role: Lead
Responsibilities	
Serve in Unified Command with the Solano County Sheriff's Office.	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize SitReps provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.3 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.	
Provide recommendation on the need for an emergency proclamation.	

3.2.4 Resource Management Department, Public Works Division

The Resource Management Department is responsible for floodplain management activities in the county.

Type: Government (County)	Role: Support
Responsibilities	
Floodplain management	
Flood-fighting assistance, such as sandbagging, and river, creek, or stream bed debris clearance	
Provides staff to the EOC, Public Works Unit	
Post signage in areas where roadways are impacted or closed	

3.2.5 Solano County Water Agency

The SCWA is a wholesale water agency serving all of Solano County. The agency receives its water from the Solano Project (Lake Berryessa) and the State Water Project through the North Bay Aqueduct. Member agencies of SCWA include the municipalities of Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo. Solano Irrigation District, Maine Prairie Water District, and Reclamation District No. 2068 are also members. Groundwater is also utilized as a water supply source for some municipalities, irrigation districts, and for small communities and agricultural areas in unincorporated areas in the county.

Type: Government (Special District)	Role: Support
Responsibilities	
Provides public information concerning water supply and flood control in Solano County	
Provides public warning regarding dam inundation coordinated with the Federal Bureau of Reclamation	
Oversees a flood warning system in place for the creeks and tributaries	

3.2.6 Levee Maintaining Agencies

Local Levee Maintaining Agencies (LMAs) including reclamation districts, the SCWA and other local agencies have the primary day-to-day responsibility for the integrity, improvement, operations, and maintenance of their flood control infrastructure, such as levees and water supply facilities in the county.

Type: Government (Special District)	Role: Support
Responsibilities	
Organize levee patrols in high-hazard situations.	
Help provide materials and equipment used in flood fighting.	
Provide situational awareness to Solano OES/EOC.	
Coordinate with DWR and CVFPB for levee work if the levee is part of the State Plan of Flood Control.	

3.2.7 California Department of Water Resources Division of Flood Management

The California Department of Water Resources (DWR) Division of Flood Management's mission is to prevent the loss of life and reduce property damage caused by floods. DWR has been developing detailed topographic data for a very large portion of the Central Valley, including portions of the county for floodplain mapping purposes. To coordinate response efforts, DWR has established the Enhanced Delta Emergency Preparedness and Response Program.

Type: Government (State)	Role: Support
Responsibilities	
Serve as subject matter experts (SMEs) for region-specific flooding.	
Purchase and deploy flood fight materials.	

3.2.8 National Weather Service

Type: Government (Federal)	Role: Support
Responsibilities	
Provide public alert and warning for severe weather, flooding, and tsunamis.	

3.2.9 US Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) flood disaster assistance program supplements and supports state and local interests upon their request for assistance from the federal government.

Type: Government (Federal)	Role: Support
Responsibilities	
Assist in flood emergency preparation and flood fighting, including personnel.	
Repair or rehabilitate flood control works threatened or destroyed by flood.	
Provide technical advice and equipment, such as sandbags, plastic sheeting, pumps, or other materials.	
In the event of imminent threat of catastrophic flooding, provide equipment to protect against substantial loss of life and property.	

4 HAZARD-SPECIFIC TRAINING

The following courses are suggested for those involved in flood response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Flood-related courses available through FEMA Independent Study are:

- IS-162 Hazard Mitigation Floodplain Management in Disaster Operations
- IS-271 Anticipating Hazardous Weather and Community Risk
- IS-322 Flood Mitigation Basics for Mitigation Staff
- IS-727 Floodplain Management and Protection of Wetlands

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Flood-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- GO361 Flood Fight Operations

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- AWR-362 Flooding Hazards: Science and Preparedness, University of Hawaii, National Disaster Preparedness Training Center

- AWR-378 Coastal Hazard and Vulnerability Assessment Tools, University of Hawaii, National Disaster Preparedness Training Center
- AWR-379 Coastal Hazards Awareness, University of Hawaii, National Disaster Preparedness Training Center
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD-SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- Public Law 84-99 (U.S. Army Corps of Engineers-flood fighting)
- Public Law 108-361 (Bureau of Reclamation)
- Public Law 107-310 (National Dam Safety and Security Act of 2002)

State

- California Natural Disaster Assistance Act. Section 128, California Water Code (California Department of Water Resources - flood fighting)
- California Dam Safety Act-Division 3 of the Water Code
- State, Title 19, Public Safety, Division 2 (Office of Emergency Services), Chapter 2 (Emergencies and Major Disaster), Subchapter 4 (Dam Inundation Mapping Procedures) of the California Code of Regulations
- California State Building Code-California Code of Regulations, Title 24
- California Water Code, Section 8370
- California Public Resources Code, Section 21060.3

Local

- Solano County Land Use Planning Regulations

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- FEMA (2023). Response and Recovery Climate Change Planning Guidance. Available at https://www.fema.gov/sites/default/files/documents/fema_response-recovery_climate-change-planning-guidance_20230630.pdf

Local

- Association of Bay Area Governments, Solano County Water Agency Annex & Solano Irrigation District Annex
- San Francisco Bay Area, Regional Emergency Coordination Plan
- SCWA Flood Hazard Information
- SCWA Integrated Regional Water Management Plan (IRWMP)

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APPENDIX EE: AGRICULTURE AND FOOD SAFETY

Last Updated: April 2024

Incident/Unified Command	• Solano County Agriculture Commission • Solano County Public Health • Solano County Environmental Health • Solano County Sheriff's Office • Federal Bureau of Investigation
Support Agencies and Organizations	• Solano Office of Emergency Services • California Department of Food and Agriculture • California Farm Bureau • United States Department of Agriculture • Food and Drug Administration • Center for Disease Control and Prevention

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Agriculture and Food Safety Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from hazards within the agriculture sector, including those having to do with food safety. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of an agriculture incident.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding agriculture incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from agriculture incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of agricultural incidents, including those having to do with food safety, and to support a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA). Agricultural incidents in Solano County are categorized into three main branches, as follows:

- **Primary:** Primary agricultural system incidents are those that originate within the sector itself. This includes disease, pest, or poisonous agents that occur naturally or are unintentionally introduced. For example, the Highly Pathogenic Avian Influenza (HPAI) Outbreak of 2015 was the largest animal health event in U.S. history, resulting in the depopulation of over 43 million chickens, turkeys, and other poultry. Other examples include African swine fever, foot and mouth disease, fusarium head blight, and fruit flies. This also includes the risk of foodborne illnesses like Salmonella.
- **Targeted:** Targeted agricultural incidents are those that that are intentionally introduced, as in the case of terrorism. This category includes disease, pest, or poisonous agents but also includes cyberattacks that disrupt agricultural systems.
- **Cascading:** Cascading agricultural system incidents are those which occur when the sectors are severely impacted due to another primary incident. Identified natural hazards within Solano County that have the potential to cause cascading impacts within the sectors include wildfire, flood, severe weather, drought and water shortage, and landslide. Other incidents, such as a large transportation accident, can create significant disruption as well.

1.2.1 Incident Objectives

Solano County's agriculture and food safety incident response strategy is based on the following objectives:

- Protect the health and safety of the human population, livestock, and crops.
- Protect, mitigate, and recover from economic impacts.
- Maintain an adequate food supply.
- Preserve natural resources.

1.2.2 Critical Tasks

During agriculture and food safety incident response, critical tasks may include the following:

- Engage subject matter experts to understand the scope and severity of the threat.
- Alert appropriate state and federal agencies.
- Provide timely and accurate information to the public and manage rumors.
- Impose swift and effective quarantine and movement controls of affected crops and livestock.
- Enact stringent and effective biosecurity measures.
- Establish rapid diagnosis and reporting.
- Provide increased surveillance, epidemiological investigation, and tracing.
- Provide emergency vaccinations.
- Support continuity of business measures for noninfected premises and noncontaminated produce and animal products.
- Conduct rapid mass depopulation and euthanasia of affected livestock.
- Instigate effective and appropriate disposal procedures.
- Enhance cleaning and disinfection (virus elimination) measures.

1.3 HAZARD SITUATION

1.3.1 General

According to the 2022 Solano County Crop and Livestock Report, agriculture production for the year was $390,881,000. This was a 4% downturn from 2021 due to several impacts, including extreme temperatures (both heat and cold), drought, water reduction, and off-season rains. Significant crops and livestock produced and/or processed within the jurisdiction include, but are not limited to, tomatoes, nursery products, cattle and calves, alfalfa, grapes, almonds, walnuts, sheep and lambs, and prunes. These products were sold within the county at groceries and farmers markets as well as being exported to 41 countries and nearly every state. This sector is vital to local, national, and international food supplies.

Solano County is faced with several hazards that may result in impacts to agriculture, as seen below:

- Numerous plant and animal diseases exist that could impact communities through natural, accidental, or intentional introduction.
- Drought and other severe weather may impact agriculture and animals throughout the county.
- The vulnerability of livestock during incidents can have impacts at both individual and commercial levels, with the potential for long-range effects on the local and state economy.
- An incident may cause or be caused by the spread of a contagious disease through the food and water supply systems or from animals to people.
- Some animal diseases are very contagious (such as foot and mouth disease) and would be very difficult to identify, isolate, control, and eradicate. In addition, many agents are zoonotic, affecting both animals and people.
- Some plant diseases are highly infectious to other plants and can be very difficult to identify, isolate, control, and eradicate.
- Any displacement or evacuation of people from their homes may cause livestock to be placed at risk for food, shelter, and care. Local shelters are likely inadequately prepared for livestock.

Figure 1 shows land use areas within Solano County, including those used in agricultural production.

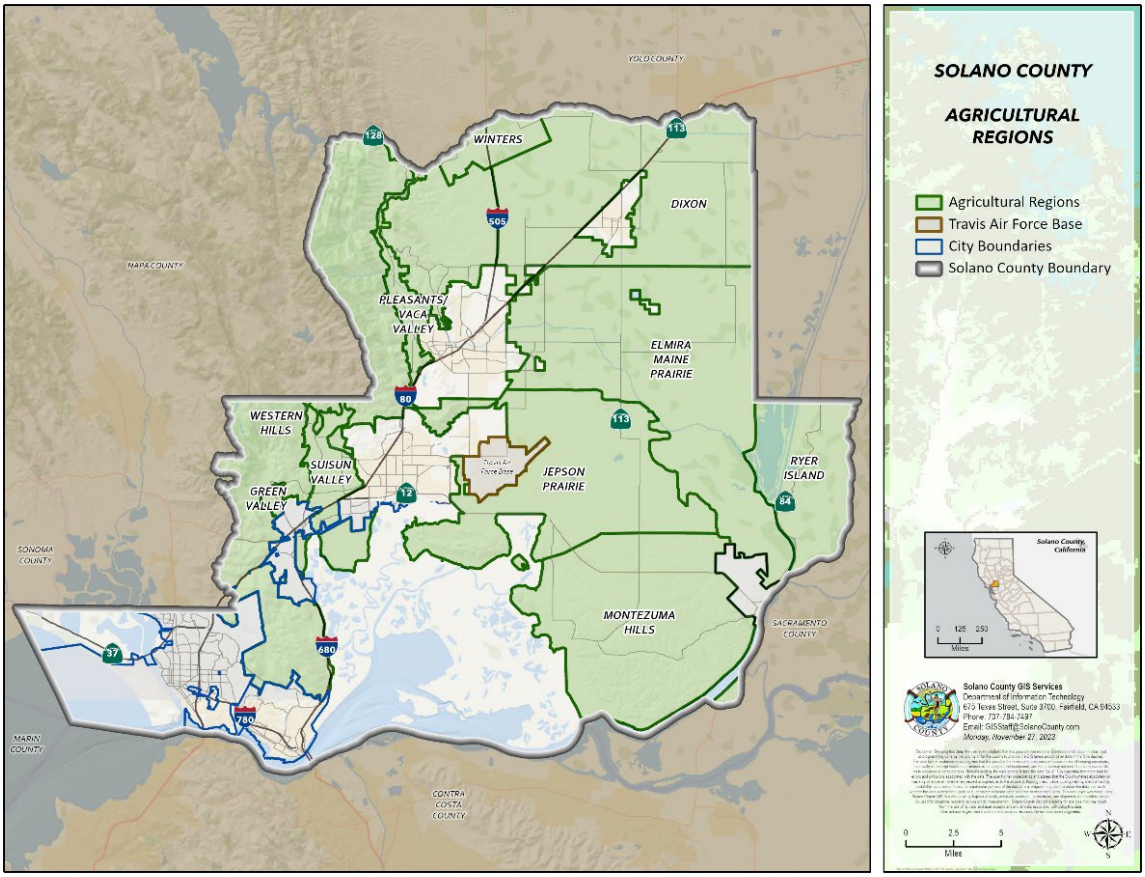

Figure 3: Solano County Agricultural Use Regions

1.3.2 Impacts

Food and agriculture incidents have the potential to cause the following impacts on community and public safety:

- Injury and loss of life
- Significant economic impact (jobs, sales, tax revenue) to the community
- Food supply chain disruptions
- Public panic

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- Agricultural producers, when notified of an impending incident, will take reasonable steps to shelter and protect their crops and livestock.
- Contagious animal diseases, plant diseases and pests that attack plants and livestock involved in the farm-to-table pathway could result in severe economic losses and public health consequences.
- Food contamination can result in both localized and widespread food-borne illness, thereby causing a public health emergency or long-term economic impacts.
- The time between the reporting of a disease and its identification as an emergency incident is critical. A highly contagious disease could spread rapidly through a region via vectors, markets, product movement, and fomites (people, vehicles, etc.).
- The County's resources would be rapidly depleted if the outbreak involved multiple facilities or large areas.
- Vector/contamination control may require discarding large quantities of agricultural products and organic matter, invoking embargoes or trade restrictions, culling livestock, and identifying alternate sources of food.
- Widespread, mass culling of herds will create disposal and air quality issues.
- Aggressive and proactive actions by local, state, and (possibly) federal authorities will be required to stop a highly contagious disease.
- Early detection is critical and encompasses a variety of actions at all levels of government, industry, and the private sector.
- Agricultural incidents do not respect jurisdictional boundaries and require significant, coordinated efforts between multiple local, state, tribal, regional, national, and sometimes international partners.
- Public-private partnerships are critical to mitigate any effects of an agriculture-related incident.
- Suspected infected locations, machinery, distribution centers, restaurants, eateries, and transport vehicles may need to be cleaned, disinfected, and reevaluated for contamination.

- Some landowners, individuals, or groups may strenuously object to depopulation of animals or destruction of plants. Some people may not consider the threat of the disease spread valid and may take actions counterproductive to control and eradication efforts.
- First responders may not be familiar with the special conditions of an animal or plant health emergency. These include quarantine, isolation, security and biosecurity precautions, personal protective equipment, decontamination, etc.
- Volunteers will want to help and can make a significant contribution to response efforts.
- Volunteers may require significant training of incident protocols.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant agriculture and food safety incident include:

- A history of clinical and epidemiological findings.
- Results of physical examinations.
- Necropsy findings.
- Specimen collection and submission to an approved laboratory.
- Reporting/situational information.

Any livestock or crops under suspicion should be immediately quarantined until assessment can be conducted.

2.2.2 Hazard Analysis and Critical Control Point

A Hazard Analysis and Critical Control Points (HACCP) assessment may be used to determine potential routes of spread/contamination. HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. HACCP is based on the following principles:

- Conduct a hazard analysis.
- Determine the critical control points.
- Establish critical limits.
- Establish monitoring procedures.
- Establish corrective actions.
- Establish verification procedures.
- Establish record-keeping and documentation procedures.

2.2.3 Notification or Confirmation

Notification or confirmation of a significant agriculture and food safety incident will most often come from Pest Control Advisors (PCAs), veterinarians, agricultural producers, the U.S. Department of Agriculture (USDA), or the Food and Drug Administration (FDA). PCAs and veterinarians are often the first to recognize a problem or suspicious finding. Local foodborne illness may also present through local hospital reporting and epidemiological findings.

2.3 CONDUCT OF PUBLIC WARNINGS

While agricultural impacts do not always lend themselves to alert and warning, public information will be essential to better inform residents and visitors of potential public health and animal health risks as well as disruptions of the food supply chain. This may include the issuance of food recalls.

Public alert and warning of outbreaks of contagious animal diseases, plant diseases, and pests that attack plants and livestock may be conducted by the USDA, the California Department of Food and Agriculture (CDFA), or the Solano County Agriculture Commissioner.

Public alert and warning of food illnesses and food recalls may be conducted by the Food and Drug Administration (FDA), CDFA, or the Solano County Agriculture Commissioner.

In most instances, information about potential threats to agriculture and food supplies will be communicated through public information efforts and not through standard alert and warning platforms. Use of culturally competent messaging content and a wide range information dissemination platforms and strategies will ensure reach to diverse populations and historically socially vulnerable populations, such as farm workers, those with digital limitations, and people experiencing homelessness.

2.4 PROTECTIVE AND STABALIZATION ACTIONS

Protective and stabilization actions* that may be implemented in response to an agriculture and food safety incident include:

- **Public Health Surveillance.** Establish procedures to identify casualties and recognition of symptoms or syndromes by producers, veterinarians, and clinicians both onsite and in clinical settings.
- **Public Health Guidance.** Individuals working at facilities where a hazard is suspected should follow public health guidance which, may include activities such as:
  - Isolation and quarantine
  - Use of personal protective equipment (PPE)
  - Decontamination
  - Mass prophylaxis
  - Mass depopulation

  Refer to the *Public Health and Medical Annex* for additional information on control measures.
- **Mass Care and Sheltering.** Livestock threatened by cascading hazards (e.g., flood, wildfire) may be relocated to safe facilities, such as fairgrounds or private farmland and ranches until the threat passes.
- **Alternate Food Supplies.** If impacts to the food chain are expected to be or have become significant, it may be necessary to find and source alternate options.

*For agriculture and food safety incidents, the same actions are appropriate both before and after impact.

2.5 RECOVERY ACTIONS

Short-term recovery operations to an agriculture and food safety incident may include:

- **Damage Assessments.** A thorough accounting of damage to the impacted area should be completed as quickly as possible; this assessment should include not only the financial impact but also account for operational capacity.
- **Commodity Recovery.** Remove movement controls on food, water, crops, and livestock as soon as possible.
- **Environmental Recovery.** Mitigate against potential future agricultural incidents and restore the impacted areas.
- **Economic Recovery.** Focus on returning economic and agricultural business activities to a state of health and develop new economic opportunities that result in a sustainable and viable community. Coordinate with support agencies to ensure financial tracking of any potential deployed assets and adequate cost accounting measures are being used.

In addition, the following federal programs are available to assist with recovery:

- **Livestock Indemnity Program.** The USDA offers the Livestock Indemnity Program to reimburse producers up to 75% of the market value of animals lost due to adverse weather conditions, including wildfires.
- **Non-Insured Crop Disaster Assistance Program (NAP).** This USDA program enables ranchers who have previously applied for coverage to receive compensation for a loss of forage due to drought or other natural disasters, including wildfire.
- **Emergency Conservation Program.** Administered through local Farm Service Agency offices, this program assists ranchers with fence construction and repairing other rangeland infrastructure that may have been lost or damaged due to a natural disaster.
- **Emergency Livestock Assistance Program (ELAP).** This program compensates producers for a percentage of pasture or forage loss on private lands due to natural disasters.
- **Livestock Forage Disaster Program.** This USDA program compensates producers who suffer pasture or forage loss due to drought or who have federally managed grazing leases but are not allowed to graze the lease because of wildfire.
- **Emergency Forest Restoration Program (EFRP).** Nonindustrial, private forest landowners may apply for emergency measures to restore land damaged by a natural disaster.
- **Tree Assistance Program.** This USDA program provides financial assistance to replant or rehabilitate eligible trees, bushes, and vines damaged by natural disasters.
- **Environmental Quality Incentive Program (EQIP).** There are special catastrophic fire funds available under EQIP.

California also routinely makes various state programs available to support agricultural and food safety recovery. It is recommended that producers and food providers reach out to CDFA to determine what programs are currently available.

2.6 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from a food and agriculture incident.

2.6.1 Lifeline Considerations

Food, Hydration, Shelter

- Low flow or lack of water in remote streams and ponds will increase susceptibility of livestock and crops to diseases and pests.
- Drought impacts to aquaculture, agriculture, and pasture lands may result in losses that lead to decreased food availability, less food sovereignty, and increased food costs.
- Drought impacts to estuary environments (where salt water and fresh water meet) may impact drinking water quality, as well as species conservation efforts, and make certain agricultural areas unfarmable due to land salinity.

- Fire damage may result in greater losses of crops, a decrease in crop quality, or changes in harvesting methods that harm productivity.
- Livestock will likely suffer more direct losses due to wildfire and smoke exposure, including burns, burn-related deaths, and pneumonia. Additionally, larger and more intense wildfires may lead to greater indirect losses, such as reduced conception rates, lower birth weights, and reductions in animal milk production.

Health and Medical

- Animal migration (driven by reduced access to food and water in their natural ranges) into agricultural areas may increase the likelihood of disease and pest introduction.
- Floodwaters may contain sewage, which can cause diarrheal disease through exposure to E. coli or Salmonella if anything contaminated with such floodwaters is consumed.

Safety and Security

- The agricultural system is an extensive, open, interconnected, diverse, and complex structure providing potential targets for terrorist attacks.

2.6.2 Equity Considerations

Any agricultural impacts can lead to inequitable cascading impacts on the cost of food for low-income communities. Rising prices cause food insecurity, which often cause pople to eat calorie-rich but nutrient poor foods, which in turn leads to obesity.

2.6.3 Climate Change

Climate change is increasing the frequency, duration, and intensity of most natural disasters and will increasingly pose a major challenge to Solano County agriculture because of the critical dependence of the agricultural and food system on climate and the complex role that agriculture and food products play in social and economic systems. Weather and climate characteristics, such as temperature, precipitation, carbon dioxide, and water availability, directly impact the health and wellbeing of plants and livestock as well as pasture and rangeland production. The harmful effects of severe weather, coupled with global climate change, are currently affecting water resources, agriculture, land resources, and biodiversity. This trend is expected to continue as production of all agricultural commodities will become more vulnerable to the direct impacts (e.g., changes in crop and livestock development and yield) and indirect impacts (e.g., increasing pressures from pests and pathogens) which result from changing climate conditions and extreme weather.

2.6.4 Other Considerations

Local emergency proclamations and/or governor's proclamations are not prerequisites for mutual aid assistance, or disaster loan programs designated by the Small Business Administration, or the U.S. Department of Agriculture.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

The lead agency for a local agriculture and food safety incident is dependent upon its nature. Primary incidents are led by local agencies as described in Section 3.2. A targeted incident is the responsibility of the Federal Bureau of Investigation (FBI), with Solano County Sheriff's Office as the local lead agency. A cascading incident will be led by whatever agency is assigned the lead for that type of incident.

The lead agency may be supported by the various departments, agencies, and organizations listed below. Agriculture and food safety incidents may cause activation of operational functions such as, but not limited to, animal care, mass care and shelter, and protective actions. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for food and agriculture incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Solano County Agriculture Commission

Type: Government (County)	Role: Lead (Primary) or Support (Targeted)
Responsibilities	
Serve in Unified Command with Solano County Public Health and Solano County Environmental Health or as support, depending on the incident.	
Provide incident information in a routinely and timely manner to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	
Provide timely notification to local producers, Solano County Public Health, and Solano OES of a known or suspected outbreak inside or outside of Solano County, which may impact Solano County.	

Assist local producers in evaluating the need for an outbreak assessment for suspected outbreaks originating in or migrating to Solano County.
Coordinate assessments between Solano County, local producers, and federal entities when an outbreak is suspected or confirmed.
Work with agricultural industry to evaluate and prepare disaster declaration information to the State.
Coordinate livestock response during an incident.

3.2.2 Solano Public Health

Type: Government (County)	Role: Lead (Primary) or Support (Targeted)
Responsibilities	
Serve in Unified Command with Solano County Agriculture Commission and Solano County Environmental Health or as support, depending on the incident.	
Provide incident information timely and routinely to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	
Assist local producers in evaluating the need for an outbreak assessment for suspected outbreaks originating in or migrating to Solano County.	
Coordinate assessments between Solano County, local producers, and federal entities when an outbreak is suspected or confirmed.	
Provide investigations of food borne illness outbreaks.	

3.2.3 Solano Environmental Health

Type: Government (County)	Role: Lead (Primary - Foodborne) or Support
Responsibilities	
Serve in Unified Command with Solano County Agricultural Commissioner.	
Provide incident information in a routinely and timely manner to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

Assist local producers in evaluating the need for an outbreak assessment for suspected outbreaks originating in or migrating to Solano County.
Coordinate assessments between Solano County, local producers and food providers, and federal entities when an outbreak or foodborne illness is suspected or confirmed.
Provide recommendations for the most appropriate methods of disposal for dead and diseased animals.
Provide inspections of dairies and confined animal facilities.
Consider environmental impacts and make best practice recommendations for disinfectants used to clean vehicles, equipment, and facilities.

3.2.4 Solano County Sheriff's Office

Type: Government (County)	Role: Lead (Targeted)
Responsibilities	
Serve in Incident Command.	
Provide incident information in a routinely and timely manner to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	
Provide scene security and evidence preservation during a suspected terrorist incident.	
Coordinate with state and federal authorities when terrorism is suspected or confirmed.	

3.2.5 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will:	

• Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.
Provide recommendation on the need for an emergency proclamation.

3.2.6 California Department of Food and Agriculture

Type: Government (State)	Role: Support
Responsibilities	
Evaluate safety and security of meat, poultry, dairy products, and other foods of animal origin.	
Support the prevention, detection, and eradication of livestock and poultry diseases and dairy contamination incidents.	
Work with local producers, Solano County Agricultural Commissioner, and state and federal entities to provide an outbreak assessment and determine the need for control measures and protective actions.	

3.2.7 Solano County Farm Bureau

Type: Non-Profit	Role: Support
Responsibilities	
Provide local producers with assistance in obtaining recovery resources through state and federal programs.	

3.2.8 California Farm Bureau

Type: Non-Profit	Role: Support
Responsibilities	
Provide local producers with assistance in obtaining recovery resources through state and federal programs.	

3.2.9 United States Department of Agriculture

Type: Government (Federal)	Role: Support
Responsibilities	
Serve as the lead federal agency for incident management during an agricultural incident.	
Deploy National Incident Management Teams (NIMTs), coordinate the incident response, manage public messages, and take measures to neutralize the threat.	
Support surveillance and diagnostics, quarantine and movement control, biosecurity, epidemiological investigations, appraisal and compensation, depopulation or euthanasia, carcass disposal, and cleaning and disinfection. In some cases, may support emergency vaccination.	
Provide post-incident recovery programs.	

3.2.10 Federal Bureau of Investigation

Type: Government (Federal)	Role: Lead (Targeted)
Responsibilities	
Serve as the lead federal agency for incident management during a terrorist incident.	
Deploy National Incident Management Teams (NIMTs), coordinate the incident response, manage public messages, and take measures to neutralize the threat.	

3.2.11 Food and Drug Administration

Type: Government (Federal)	Role: Support
Responsibilities	
Serve as a support federal agency for incident management during an agricultural or terrorist incident involving the food chain and food supply.	
Manage investigation and public messaging during foodborne illness outbreaks.	

3.2.12 Centers for Disease Control and Prevention

Type: Government (Federal)	Role: Support
Responsibilities	
Serve as a support federal agency for incident management during an agricultural or terrorist incident involving zoonotic and plant diseases.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in an agriculture and food safety incident response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Food and agriculture incident-related courses available through FEMA Independent Study are:

- IS-111 Livestock in Disasters

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Food and agriculture incident-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- No courses identified at this time.

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- EHTER Awareness AWR-922-W Environmental Health Training in Emergency Response Awareness Course (Center for Domestic Preparedness, online)
- EHTER OPS PER-309 Environmental Health Training in Emergency Response – Operations (Center for Domestic Preparedness, onsite)
- Any additional training mandated by state or federal regulations.

To support the integration of those with disabilities and access and functional needs (DAFN) in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- P.L. 111-353 Food Safety Modernization Act (FSMA)
- P.L. 89-533 Animal Welfare Act
- 7 U.S. Code Chapter 109 – Animal Health Protection
- 9 CFR 71.2 and 71.3 (Rule Governing Quarantine and Interstate Movement of Diseased Animals, including Poultry, including African swine fever, hog cholera [classical swine fever], contagious bovine pleuropneumonia, contagious equine metritis, dourine, foot-and-mouth disease, glanders, highly pathogenic avian influenza, Rinderpest, scabies, Teschen, screwworms, vesicular exanthema)
- 9 CFR 53 (Foot-and-Mouth Disease, pleuropneumonia, Rinderpest, and Certain Other Communicable Diseases of Livestock or Poultry)
- 9 CFR 161 (Requirements and Standards for Accredited Veterinarians)
- 9 CFR 56 (Control of H5/H7 Low Pathogenic Avian Influenza)
- 9 CFR 82 (Newcastle disease and chlamydiosis in Poultry)

- 9 CFR 94 (Rinderpest, foot-and-mouth disease, Newcastle disease, highly pathogenic avian influenza, African swine fever, classical swine fever, swine vesicular disease, and bovine spongiform encephalopathy: Prohibited and restricted importations)

State

- California Food and Agricultural Code, Section 9101
  Local
- Solano County Code § 2.2 Agricultural Lands and Operations
- Solano County Code Chapter 14 Business Licenses

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- California Department of Food and Agriculture (CDFA). (2022). Target Pest Profiles. Retrieved from https://www.cdfa.ca.gov/plant/pdep/target_pests.html
- Food and Drug Administration (FDA), United States Department of Agriculture (USDA), and Department of Homeland Security (DHS). (2015). Food and Agriculture Sector-Specific Plan. Retrieved from https://www.cisa.gov/sites/default/files/publications/nipp-ssp-food-ag-2015-508.pdf
- (2017). Foreign Animal Disease Preparedness and Response Plan: Highly Pathogenic Avian Influenza Response Plan. Retrieved from https://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai_response_plan.pdf
- USDA. (2020). Foreign Animal Disease Preparedness and Response Plan: African Swine Fever Response Plan. Retrieved from https://www.aphis.usda.gov/animal_health/emergency_management/downloads/asf-responseplan.pdf
- (2020). Foreign Animal Disease Preparedness and Response Plan: Foot and Mouth Disease Response Plan. Retrieved from https://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf

State

- California Department of Food and Agriculture. (2013). Emergency Support Function 11: Food and Agriculture Annex. Available at https://caloes.ca.gov/wp-content/uploads/Preparedness/Documents/11-Executive-Summary-Agriculture-Annex.pdf

Local

- Solano County. (2022). 2022 Solano County Crop and Livestock Report. Available at https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=41365

APPENDIX FF: SLOPE FAILURE

Last Updated: April 2024

Incident/Unified Command	• Solano County Sheriff's Office • Solano County Fire Agency(ies)
Support Agencies and Organizations	• Solano Office of Emergency Services • Solano Public Works

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Slope Failure Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agency responsibilities, and resources to mitigate against, prepare for, respond to, and recover from slope failure. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of slope failure.
- Identify roles and responsibilities of County departments, agencies, and partners specifically regarding slope failure incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from slope failure incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of slope failure and for supporting a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's slope failure response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Manage a coordinated response effort.
- Protect environmentally sensitive areas.
- Implement an emergency engineering response.
- Minimize economic impacts.
- Keep the public informed of response activities.

1.2.2 Critical Tasks

During a slope failure response, critical tasks may include:

- Engage subject matter experts to understand the scope and severity of the threat.

- Provide timely, verified, and actionable information to the public, and manage rumors and misinformation.
- Evacuate individuals within potential or actual landslide or debris avalanche areas and provide mass care and shelter.
- Locate individuals who have been injured and trapped by a landslide.
- Establish perimeters around areas of high risk and enact road closures on threatened or impacted roadways.
- Anticipate and accommodate the needs of vulnerable populations, including people with disabilities and access and functional needs (DAFN), and provide culturally relevant and inclusive information.
- Provide prompt restoration of lifeline services and critical facilities.

1.3 HAZARD SITUATION

1.3.1 General

Landslide, mudflow, debris flow, and rockfall, collectively known as slope failure, may cause damage across the county. Slope failures rarely present a threat to human life, but often result in a disruption of everyday services, including incident response capabilities. Landslides can block transportation routes, dam creeks and drainages, impact critical infrastructure like water, power and wastewater lines, and contaminate water supplies. When these hazards affect transportation routes, they are frequently expensive to clean up and can have significant economic impacts on the county.

- **Landslide:** The many types of landslides are categorized based on form and type of movement. They range from slow moving rotational slumps and earth flows, which can distress structures over time but are less threatening to personal safety, to fast-moving rock avalanches and debris flows that are a serious threat to structures and have been responsible for most fatalities during landslide events. Many large landslides are complex and a combination of more than one landslide type.
- **Mud and Debris Flow:** When slope material becomes saturated with water, a debris flow may develop. Debris flows can also occur from horizontal seismic inertia forces induced in a slope from the ground shaking. From a geologic perspective, there are generally two types of debris flows: debris flows related to shallow landslides and post-wildfire debris flows.

  Debris flows related to shallow landslides occur on hillslopes due to soil failure in which soil liquefies and runs downhill. This type of slope failure has a distinct initiation zone and depositional area. Shallow landslides tend to occur in winter but are most likely after prolonged periods of heavy rainfall when soil materials are saturated. Debris flows are typically more dangerous because they are fast-moving, causing both property damage and loss of life.

  Post-wildfire debris flows are a result of post-fire conditions, where burned soil surfaces enhance rainfall runoff that concentrates in a channel and picks up debris as it moves. The post-fire debris flow has a less distinct initiation zone but is similar to a debris flow derived from hillslopes in

that it may result in inundation and a detrimental impact on lives and property within its zone of runout and deposition. It can also result in downstream flooding.

- **Rockfall:** Rockfall is the falling of a newly detached mass of rock from a cliff or rock outcrop, or a loose rock that erodes out of unconsolidated debris on a hillside and rolls or falls down a very steep slope. Over-steepened slopes are susceptible to rockfall due to the steep slopes that are not highly vegetated or benched, which help attenuate rockfall. Rock outcrops that are highly fractured or undercut by weaker rock layers are also susceptible to rockfall.

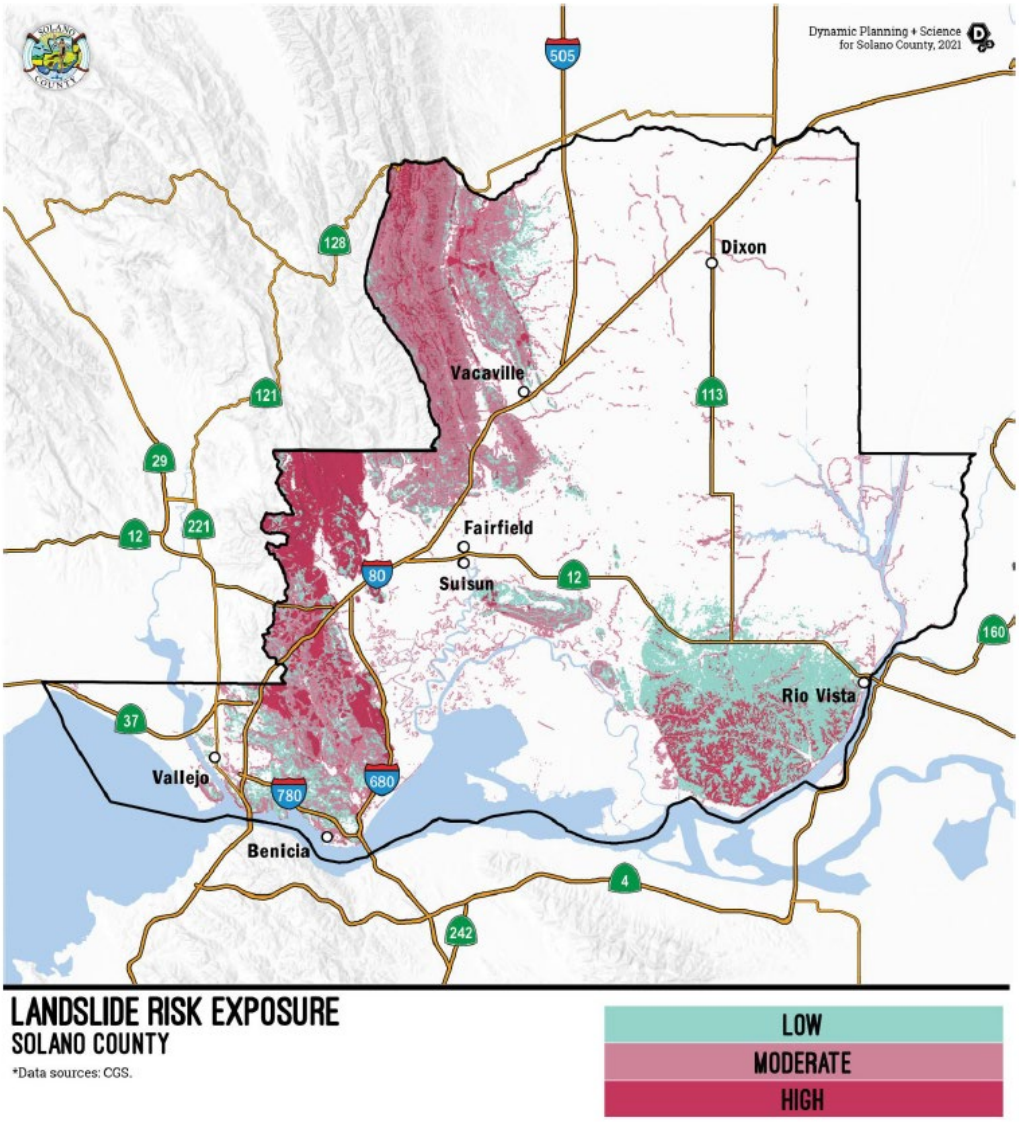

Figure 4: Solano County Landslide Risk Exposure (Source: Solano MJHMP)

Information from this section was taken from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding slope failure in Solano County may be found in the MJHMP: Volume 1.

1.3.2 Impacts

Slope failure incidents have the potential to cause the following impacts on community and public safety:

- Injury and loss of life
- Commercial and residential structural and property damage
- Disruption of and damage to public infrastructure, utilities, and services
- Damage to roads/bridges resulting in loss of mobility, access, and impact to response time
- Significant economic impact (jobs, sales, tax revenue) on the community
- Negative impact on commercial and residential property values, increased insurance rates to property
- Blockages of waterways and cascading effects, such as flooding
- Destruction of natural and cultural resources, with forest and fish habitats being most easily damaged or temporarily destroyed

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- A landslide and its impacts may develop slowly over days and weeks or may occur suddenly and without warning.
- A landslide has the potential to disrupt transportation and other lifelines for weeks or months. A landslide-prone area can create repeated disruptions over decades.
- Many residential, commercial, and institutional structures could be damaged, requiring a large urban search and rescue (USAR) / heavy rescue mobilization.
- Residents may be displaced, requiring shelter and social-service needs. Sheltering activities may be short-term or long-term depending on the severity of the incident.
- Vital infrastructure, such as potable water supplies, electrical power, natural gas, and sewer services, may be compromised; reestablishment of these vital resources is critical to stabilizing the incident.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant slope failure incident include:

- Earthquake
- Severe storm
- Multiple freeze and thaw cycles throughout the winter months
- Springs, seeps, or saturated ground in areas that have not typically been wet before
- New cracks or unusual bulges in the ground, street pavements, or sidewalks
- Cracks in upper slopes and ridging or building at the toe of slopes
- Soil moving away from foundations
- Ancillary structures such as decks and patios tilting and/or moving relative to the main house
- Tilting or cracking of concrete floors and foundations
- Broken water lines and other underground utilities
- Leaning telephone poles, trees, retaining walls, or fences
- Offset fence lines
- Sunken or down-dropped roadbeds
- Rapid increase in creek water levels, possibly accompanied by increased turbidity (soil content)
- Sudden decrease in creek water levels though rain is still falling or just recently stopped
- Unusual sounds, such as trees cracking or boulders knocking together, possibly indicating moving debris
- Human-induced activity such as excavation of slopes and filling

2.2.2 Notification or Confirmation

Notification or confirmation of a significant slope failure event will most often come from the public or frontline workers and first responders such as public works or law enforcement.

2.3 CONDUCT OF PUBLIC WARNING

Public alert and warning regarding slope failure will be conducted by Solano OES. For more information about OES alert and warning see the Public Information, Alert and Warning Annex.

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to a slope failure threat include:

- **Evacuation.** Evacuation should be conducted whenever indicators of an imminent landslide have been observed in an area that threatens life or habitable structures and should remain in place until subject matter experts have certified an area safe for repopulation.

- **Road closure / perimeter establishment.** Like evacuation, if indicators of an imminent landslide have been observed in an area through which people or livestock travel, roadways should be closed, and a perimeter established until subject matter experts can certify the area safe for reentry.
- **Proactive release.** Slopes at risk for imminent landslide may be proactively released using explosives or other mechanical means to control the time and other conditions of that release.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to slope failure include:

- **Utility restoration.** Rapid utility restoration is critical for incident stabilization and to reduce cascading effects.
- **Slope stabilization.** Several types of measures can be taken pre- or post-slide to increase stabilization. These are:
- Geometric methods, in which the geometry of the hillside is changed (in general, the slope). Such methods may include slope flattening, removing loads from the top of the slope, and/or providing berms at the toe of the slope.
- Hydrogeological methods, including installing drainage systems, dewatering or other means to reduce the water content of the material.
- Chemical and mechanical methods, in which attempts are made to increase the shear strength of the unstable mass or to introduce active external forces (e.g., anchors, rock or ground nailing) or passive forces (e.g., structural wells, piles, or reinforced ground) to counteract the destabilizing forces.
- **Debris removal.** Debris flows can impede traffic as well as block drainages, leading to subsequent flooding. Whereas debris removal is typically considered a recovery action, for landslides it becomes part of incident stabilization.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** A thorough accounting of damaged facilities and infrastructure should be completed as quickly as possible. This assessment should include not only the financial impact but also account for operational capacity.
- **Seeding.** Using wild plant seeds in denuded areas for rapid germination and regeneration of vegetation to hold the soil and protect the watershed from erosion.
- **Repopulation.** Providing structural damage evaluation and other safety clearances to open neighborhoods and business districts for repopulation is critical for housing and economic recovery.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from slope failure.

2.7.1 Lifeline Considerations

Communications

- Buried fiber optic cables and nodes, which provide internet and communication services, are at risk.

Energy

- Gas and electric asset performance may be impacted due to asset damage and failure and can disrupt energy generation, transmission, and distribution.

Food Hydration, Shelter

- Damage to homes may prompt the need for FEMA Individuals and Households Program (IHP) support.
- Slope failure may damage watersheds, harming both water quality and water supplies.

Health and Medical

- Disruptions to transportation routes may impact responders' ability to provide critical life safety response in a timely manner.

Safety and Security

- Damaged or severed power or gas lines may increase risk of fire and explosion.

Transportation

- Disruptions to the transportation system could severely impact supply chains and reduce mobility to workers, residents and commuters.

2.7.2 Equity Considerations

Approximately 40% of the populations living in coastal counties fall into an elevated risk category. This includes children, the elderly, culturally diverse populations, households where English is not the primary language, those living in poverty, and populations with DAFN.

Traffic delays from slope failure are projected to disproportionately affect populations that are low income, are of minority status, and/or have no high school diploma.

2.7.3 Climate Change

Climate change can have a direct impact on factors that contribute to slope failure, including loss of vegetation, more severe and intense precipitation, more frequent and extreme freeze/thaw cycles, and increased temperatures, which increase soil permeability.

2.7.4 Other Considerations

Mudslides develop when water rapidly accumulates in the ground and results in a surge of water-saturated rock and debris. Areas where wildfires or human modification of the land have destroyed vegetation on slopes are particularly vulnerable to landslides during and after heavy rains.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Solano County Sheriff's Office and impacted Solano County fire agencies typically take unified command of slope failure incidents and may be supported by the various departments, agencies, and organizations listed below. Slope failure incidents may cause activation of operational functions such as, but not limited to, mass care and shelter and debris management. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for slope failure incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Solano County Sheriff's Office

Type: Government (County)	Role: Lead
Responsibilities	
Serve in Unified Command with the relevant Solano County fire agency(ies).	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.2 Solano County Fire Agencies

Type: Government (Special District)	Role: Lead
Responsibilities	
Serve in Unified Command with the Solano County Sheriff's Office.	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize SitReps provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.3 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.	
Provide recommendation on the need for an emergency proclamation.	

3.2.4 Solano Public Works

Type: Government (County)	Role: Support
Responsibilities	
Provide resources as needed at incident site.	
Provide incident information routinely and in a timely fashion to the EOC.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in a slope failure response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Slope-failure related courses available through FEMA Independent Study are:

- No slope-failure related courses have been identified.

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Slope-failure related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- No slope-failure related courses have been identified.

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

- No hazard-specific authorities were identified.

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Local

- Solano County (2022). *Multi-jurisdictional Hazard Mitigation Plan*. Available at https://www.solanocounty.com/depts/oes/emergency_plans.asp

APPENDIX GG: TERRORISM

Last Updated: April 2024

Incident/Unified Command	• Solano County Sherriff's Office • Solano County Fire Agency(ies) • Federal Bureau of Investigation • Federal Emergency Management Agency
Support Agencies and Organizations	• Solano Office of Emergency Services • Solano Public Health • United States Coast Guard • 95th National Guard Civil Support Team • Northern California Regional Intelligence Center • Central California Intelligence Center

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Terrorism Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from terrorism incidents. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of terrorism.
- Identify roles and responsibilities of County departments, agencies, and partners specifically regarding terrorism incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from terrorism incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of terrorism and for supporting a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's terrorism response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Manage a coordinated response effort.
- Maintain public order and peace.
- Minimize economic impacts.
- Keep the public informed of response activities.

1.2.2 Critical Tasks

During a terrorism response, critical tasks may include the following:

- Notify appropriate state and federal authorities.

- Gather intelligence and create a common operating picture.
- Establish the inner and outer perimeter of the impacted area(s).
- Protect and document evidence.
- Provide life safety and incident stabilization efforts.
- Provide timely, verified, and actionable information to the public, and manage rumors and misinformation.

1.3 HAZARD SITUATION

1.3.1 General

Solano County Public Safety agencies may work in partnership with the Federal Bureau of Investigation (FBI) and supporting Federal agencies to ensure the safety of the public and responding personnel. Solano County Public Safety agencies manage a coordinated response effort, maintain public order and peace; and minimize economic impacts, while keeping the public informed of response activities.

The FBI is the lead investigating agency for all international and domestic terrorism acts. The FBI defines international terrorism and domestic terrorism as follows:

- **International terrorism.** Violent, criminal acts committed by individuals and/or groups who are inspired by, or associated with, designated foreign terrorist organizations or nations (state-sponsored).
- **Domestic terrorism**. Violent, criminal acts committed by individuals and/or groups to further ideological goals stemming from domestic influences, such as those of a political, religious, social, racial, or environmental nature.

Terrorism hazards include, but are not limited to, the following:

- **Weapons of mass destruction (WMD) agents.** WMDs are defined Under California Penal Code 11417. (1); WMD's includes chemical warfare agents, weaponized biological or biologic warfare agents, restricted biological agents, nuclear agents, radiological agents, or the intentional release of industrial agents as a weapon, or an aircraft, vessel, or vehicle, as described in Section 34500 of the Vehicle Code, which is used as a destructive weapon. Under Penal Code 11416, The Legislature finds and declares that the threat of terrorism involving weapons of mass destruction, including, but not limited to, chemical, biological, nuclear, or radiological agents, is a significant public safety concern.
- **Chemical Warfare Agents.** Under California Penal code 11417. (2); Chemical Warfare Agents" includes, but is not limited to, the following weaponized agents, or any analog of these agents: Nerve agents, including Tabun (GA), Sarin (GB), Soman (GD), GF, and VX. Choking agents, including Phosgene (CG) and Diphosgene (DP). Blood agents, including Hydrogen Cyanide (AC), Cyanogen Chloride (CK), and Arsine (SA). Blister agents, including mustards (H, HD [sulfur mustard], HN-1, HN-2, HN-3 [nitrogen mustard]), arsenicals, such as Lewisite (L), urticants, such

as CX; and incapacitating agents, such as BZ. Chemical Warfare Agents are intended to seriously injure or cause loss of life or incapacitate people through physiological effects.

- **Weaponized biological or biologic warfare agents.** Under California Penal Code 11417.(3); "Weaponized biological or biologic warfare agents" include weaponized pathogens, such as bacteria, viruses, rickettsia, yeasts, fungi, or genetically engineered pathogens, toxins, vectors, and endogenous biological regulators (EBRs). Weaponized biological or biologic warfare agents may infect populations without their knowledge and will likely require detection through direct patient care providers and the public health community. Additionally, a biological agent can affect agricultural commodities over a large area.
- **Destructive weapons.** Under California Penal Code 11417. (7); used as a "destructive weapon" means to use with the intent of causing widespread great bodily injury or death by causing a fire or explosion or the release of a chemical, biological, or radioactive agent. Along with secondary devices, such as improvised bombs, may be used to cause massive local destruction.
- **Low-tech devices and delivery.** Most explosive and incendiary devices used by a terrorist would be expected to fall outside the definition of a WMD. Small explosives devices can be left in packages or bags in public areas for later detonation.
- **Cyber terrorism.** Involves the malicious use of electronic information technology to commit or threaten to commit acts dangerous to human life or against the government's critical infrastructures to intimidate or coerce a government or civilian population.

1.3.2 Impacts

Terrorism incidents have the potential to cause the following impacts on community and public safety:

- Injury or death to the public and first responders
- Mass panic and public fear
- Impacts to utilities (power, sewer, communications, water), transportation, and other critical infrastructure
- Significant economic losses by either disrupting normal economic activities, loss of jobs, or property damage
- Interruption of official government operations
- Response times delayed for areas outside of the impacted areas due to strained equipment and personnel resources
- Social disruption, including long-lasting animosity between contending groups.
- Loss of money
- Theft of personal information
- Damage to the County's reputation and safety

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- A terrorist threat or incident may occur at any time of day with little or no warning, may involve single or multiple locations, and may result in mass casualties.
- An act of terrorism may have major consequences that can overwhelm the capabilities of many local, State and/or tribal governments to respond and may seriously challenge existing federal response capabilities.
- An investigation into a terrorism incident will be led by the Federal Bureau of Investigation (FBI) and will involve many local, state, and federal agencies.
- Response activities may continue for an extended period of days or weeks.
- The incident will be extensively covered by the media. Media interest may contribute to complexity for their safety needs and right to access.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

Terrorist events are broken into two primary functions:

- **Crisis Management.** Crisis management involves law enforcement activities taken to both prevent a terrorist attack from occurring through the use of intelligence and investigate a successful terrorist attack to identify the responsible party. The FBI serves as the Lead Federal Agency (LFA) for crisis management for all potential and actual terrorist events, while State and local law enforcement agencies support the activities of the FBI.
- **Consequence Management.** First response to terrorism events are the responsibility of local and State first response agencies, and when requested, federal entities. Unless assistance is requested by local and State officials, or the terrorist event is deemed an Incident of National Significance, local agencies maintain incident command. If federal support is requested, the Federal Emergency Management Agency (FEMA) serves as the LFA for consequence management.

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of **immediate plans to carry out a terrorist attempt, or an actual attempt** include:

- For chemical warfare agents:
  - Stated threat to release a chemical agent

    - Unusual occurrence of dead or dying animals (e.g., lack of insects, dead birds)
    - Unexplained casualties
    - Multiple victims
    - Surge of similar 911 calls
    - Serious illnesses
    - Nausea, disorientation, difficulty breathing, or convulsions
    - Definite casualty patterns
    - Unusual liquid, spray, vapor, or powder
    - Droplets, oily film
    - Unexplained odor
    - Low-lying clouds/fog unrelated to weather
    - Suspicious devices, packages, or letters
    - Unusual metal debris
    - Abandoned spray devices
    - Unexplained munitions
- For Weaponized biological or biologic warfare agents:
    - Stated threat to release a biological agent
    - Unusual occurrence of dead or dying animals (e.g., lack of insects, dead birds)
    - Unusual casualties
    - Unusual illness for region/area
    - Definite pattern inconsistent with natural disease
    - Unusual liquid, spray, vapor, or powder (e.g., spraying; suspicious devices, packages, or letters)
- For nuclear weapon/radiological agents:
    - Stated threat to deploy a nuclear or radiological device
    - Presence of nuclear or radiological equipment (e.g., spent fuel canisters or nuclear transport vehicles)
    - Nuclear placards / warning materials along with otherwise unexplained casualties
    - Radiological package markings that don't match radiological readings.
    - Activation of Personal Radiation Detector (PRD) or other Radiation Detectors
- For destructive weapon attacks:
    - Stated threat to deploy an explosives attack
    - Bags or boxes in unusual places
    - Suspicious behaviors, such as someone dressed in a heavy coat in summer
    - Unusual purchases or stolen inventory regarding bomb making materials
- For low-tech device and delivery attacks:
    - Stated threat to deploy a low-tech device attack

- Bags or boxes in unusual places
- Suspicious behaviors such as someone dressed in a heavy coat in summer
- Unusual purchases or stolen inventory regarding bomb making materials

- For cyberattacks:
  - Stated threat to deploy a cyber-attack
  - Unusual outbound network traffic
  - Anomalies in privileged user account activity
  - Geographical irregularities
  - Other login red flags
  - Swells in database read volume
  - HTML response size
  - Large numbers of requests for the same file
  - Mismatched port application traffic
  - Suspicious registry or system file changes
  - Domain name server (DNS) request anomalies

Report all suspected terrorist attacks to the FBI Sacramento field office at (916) 746-7000 and to the Central California Intelligence Center (sacrtac.org) 916-808-8383 / 888-884-8383 / info@SacRtac.org. Cyberattacks on government offices should be reported to CyWatch 24/7 Command Center at cywatch@ic.fbi.gov or (855) 292-3937. CCIC Cyber Team can be reached at cyber@sacrtac.org . Cyberattacks should also be reported to the California Cybersecurity Integration Center (Cal-CSIC) at (833) REPORT-1 or calcsic@caloes.ca.gov. Report urgent threat information to the FBI-JTTF at NCRIC AOR - (415) 553-7400 / CCIC AOR - (916) 746-7000 . The CCIC Critical Infrastructure Protection Team can be reached at cip@sacrtac.org .

2.2.2 Notification or Confirmation

Notification or confirmation of a planned terrorist incident will most often come from the CCIC or NCRIC, California Governor's Office of Emergency Services (Cal OES), or local law enforcement. In the event a new threat condition is declared, CalOES may notify Solano Dispatch and the Office of Emergency Services staff. In turn, Solano OES may notify key Operational Area agencies and jurisdictional representatives.

Notification or confirmation of an executed terrorist incident will most often come from one of the above sources or from:

- Front line personnel in local government nonpublic safety departments, such as public works, housing, or Information Technology (IT).
- Front line personnel in local government public safety departments, including law enforcement and fire.
- Health and medical personnel.

- The public, including the news media, and especially in jurisdictions that educate using the Department of Homeland Security's (DHS) "See Something, Say Something" program.
- Dispatch, who may receive notification from operational partners or the public, as listed above.

Additionally, a Maritime Incident Notification may come from United States Coast Guard Sector San Francisco. Intelligence of a planned terrorist incident or threat to the maritime environment could result in a elevated level to the Maritime Security (MARSEC) Levels. More information on this can be found at https://www.uscg.mil/what-is-marsec/.

2.3 CONDUCT OF PUBLIC WARNING

The National Terrorism Advisory System (NTAS) advisories communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, public sector organizations, airports, and other transportation hubs.

Using available information, the advisories will provide a concise summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that individuals, communities, businesses, and governments can take to help prevent, mitigate, or respond to the threat.

NTAS consists of two types of advisories: bulletins and alerts.

- **Bulletins.** Communicates critical terrorism information that, while not necessarily indicative of a specific threat against the U.S, can reach homeland security partners or the public quickly, thereby allowing recipients to implement necessary protective measures. Because DHS may issue NTAS Bulletins in circumstances not warranting a more specific warning, NTAS bulletins provide the Secretary of Homeland Security with greater flexibility to provide timely information to stakeholders and members of the public.
- **Alert.** Communicates specific, credible information about a terrorist threat against the U.S. An alert may include specific information, if available, about the nature of the threat, including the geographic region, mode of transportation, or critical infrastructure potentially affected by the threat, as well as steps that individuals and communities can take to protect themselves and help prevent, mitigate, or respond to the threat. The alert may take one of two forms:
  - **Elevated:** conveys credible threat information but only general information about timing and target such that it is reasonable to recommend implementation of protective measures to thwart or mitigate against an attack
  - **Imminent**: conveys credible, specific, and impending information about an expected attack in the very near term

NTAS Alerts will be issued through State, local and tribal partners, the news media and directly to the public via the following channels:

- Via the official DHS NTAS webpage – http://www.dhs.gov/alerts
- Via email signup at – http://www.dhs.gov/alerts
- Via social media
  - Facebook – http://facebook.com/NTASAlerts

- Twitter – http://www.twitter.com/NTASAlerts

Alert and warning will also be issued locally following standard alert and warning procedures as described in the *Public Information, Alert and Warning Annex*.

2.4 PROTECTIVE ACTIONS

Protective actions that may be implemented in response to a terrorism threat include:

- **Collect, analyze, and share actionable intelligence**. Intelligence collection, integration, analysis, and information sharing ensure partners, stakeholders, and senior leaders receive actionable intelligence and information necessary to inform their decisions and operations.
- **Detect and disrupt threats**. Use actionable intelligence to thwart attacks; an implementation may span a variety of techniques including, but not limited to, sweeping of critical infrastructure and facilities and grounding aircraft.
- **Highly visible security**. Visible security measures can deter aggressors. Perimeter-focused monitoring, placement of security personnel, and increased illumination can make people reconsider the difficulty of entering or damaging a facility.
  - Increase patrols
  - Establish security checkpoints
  - Restrict movement and entry points
  - Restrict vehicle movement and parking (hardened barricades)
  - Close selected building to public access
  - Close portions of building or departments to public access
  - Maintain clear fire lanes and access to facilities
- **Increase emergency personnel staffing.** Augment or ready staffing for timely deployment should an anticipated terrorist activity be executed.
  - Adjust staffing shifts and schedules as necessary.
  - Cancel vacations and training.
  - Place all County Corrections Facilities in lock-down to make additional staff available.
  - Place additional special emergency service teams on alert or stand-by.
- **Facility hardening.** Perimeter security such as walls, fences, and restricted areas should be well defined and in proper working order.
- **Public health surveillance**. Establish procedures to identify unexplained/increased casualties and recognition of similar symptoms or syndromes by clinicians in hospitals or clinical settings. Detection of some Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) agents could occur days or weeks after exposed individuals have left the site of the release. Detection will likely occur at public health facilities receiving unusual numbers of patients, the majority of whom will self-transport.
- **Protect designated leadership, events, and soft targets**. Ensure the protection and safety of elected leaders, personnel, and events of significance.

- **Evacuation or shelter-in-place.** Evacuation may be required from inside the perimeter of the anticipated target to guard against casualties. Temporary in-place sheltering may be appropriate if there is expected to be a short-duration release of hazardous materials or if it is determined to be safer for individuals to remain in place.
- **Protect software systems and networks.** Cyber threats to a control system refer to persons who attempt unauthorized access to a control system device and/or network using a data communications pathway. Some methods of protection include keeping software and operating systems up to date, using strong passwords and two-factor authentication (two methods of verification), watching for suspicious activity (e.g., when in doubt, don't click; do not provide personal information), using encrypted (secure) internet communications, creating backup files, and protecting the Wi-Fi network.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to terrorism include:

- **Establishment of hot and warm zones.** The hot zone is a nonpermissive area where there is a direct hazard from the environment. This zone is sometimes referred to as the exclusion zone, especially where PPE does not mitigate the hazard, such as in the case of explosives or high dose radiation; the warm zone is a semi-permissive (buffer) area setup usually due to a continuing contamination hazard from casualties or equipment coming out of the hot zone. This zone is also referred to as the decontamination zone and is demarcated by a clean dirty line.
- **Evacuation or shelter-in-place.** Evacuation may be required from inside the perimeter of the scene to guard against further casualties from contamination by primary release of a hazard agent, the possible release of additional hazard agents, secondary devices, or additional attacks targeting incident responders; temporary in-place sheltering may be appropriate if there is a short-duration release of hazardous materials or if it is determined to be safer for individuals to remain in place.
- **Medical aid.** Provision of Emergency Medical Services (EMS) and rapid transport to appropriate level care facilities to protestors, first responders, and others. There may be the need for additional medical transportation resources which can be coordinated through the Medical Health Operaitonal Area Coordiantor (MHOAC).
- **Firefighting.** Crews should be prepared to respond to a multitude of business, home, and car fires. Resource limitation may require prioritization of incident response.
- **Medical surge.** Facilities should be prepared for multi-hazard/multi-agent triage; planning should anticipate the need to handle large numbers of people who may or may not be contaminated but who are fearful about their medical well-being. Consider locations and capacities of medical care facilities within the jurisdiction and in surrounding jurisdictions, especially those with trauma care. Depending on the nature and extent of an incident, the most appropriate medical care facility may not necessarily be the closest facility.
- **Decontamination of people and animals.** Decontamination, if it is necessary, may need to precede sheltering and other needs of the victims to prevent further damage from the hazard agent to either the victims themselves or the care providers.

- **Open or closed point of dispensing (POD) medical countermeasures (MCMs).** MCMs can include vaccines, antiviral drugs, antitoxins, antibiotics, and materials (e.g., personal protective equipment) that may be used to prevent, mitigate against, or treat adverse health effects of an intentional, accidental, or naturally occurring public health incident.
- **Mass care.** The location of mass care facilities will be based partly on the hazard agent involved; depending on the incident, evacuees may need to be screened for the need for decontamination / mass prophylaxis before acceptance into a mass care facility.
- **Utility restoration.** Utility disruption may occur as a cascading effect or as a result of intentional action. Rapid utility restoration is critical for incident stabilization and to reduce cascading effects.
- **Traffic control.** Traffic control protocols should be in place to deal with large crowds and immobilized vehicles. Vehicle and foot traffic ingress and egress should be limited.
- Secure software systems and networks. This may include:
- Stabilizing and regaining control of infrastructure.
- Increasing network isolation to reduce the risk of a malicious cyber activity propagating more widely across the enterprise or among interconnected entities.
- Stabilizing infrastructure within those entities that may be affected by cascading effects of the cyber incident.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** A thorough accounting of damage to the facility should be completed as quickly as possible. This assessment should include not only the financial impact but also account for operational capacity.
- **Evidence preservation.** Documentation of property damage may affect insurance claims and the ability of the justice system to seek additional penalties. All evidence, particularly video surveillance, should be cataloged and provided to law enforcement and regulatory agencies.
- **Debris removal.** Timely and safe removal of debris will be required in the instances of vandalism, property damage, and protester campsites. Security should be provided for crews conducting a cleanup of the affected areas to ensure safety and prevent the potential reoccurrence of violence.
- **Restore services and facilities.** Restoration of lifeline facilities and services must be prioritized to mitigate or stop cascading effects.
- **Repopulation of evacuated areas.** Once areas have been cleared, decontaminated, or otherwise deemed safe, repopulation of evacuated areas may begin. The individuals or agencies involved, and the approach used for clearing an area should be well documented.
- **Mental health support services.** This should be provided for all impacted populations, including residents, visitors, and first responders; support may be provided by clinical psychologists, psychiatrists, social workers, and Critical Incident Stress Management (CISM) teams.

- **Restoration of software systems and networks.** Restore from backup systems or seek assistance from government or private partners if backup systems are unavailable or compromised.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from terrorism.

2.7.1 Lifeline Considerations

Communications

- Communications infrastructure could be damaged, disrupting landline telephone, cellular telephone, radio, microwave, computer, and other communication services.
- In the event of a communications failure, especially of Public Safety Communications, consider the use of Solano County Office of Emergency Services Auxiliary Communications Service (ACS) Team to help supplement communication abilities. ACS can also help to augment communications if current systems are overwhelmed.

Energy

- Electrical power, natural gas distribution systems, and fuel supply and distribution could be compromised.

Food, Hydration, Shelter

- Residents and visitors could be displaced, requiring shelter and social service needs; sheltering activities could be short-term or long-term, depending on the severity of the incident.
- Potable water supplies may be compromised.

Health and Medical

- Water and sewer services may be compromised. Utilities may need to be taken offline due to contamination or infrastructure impacts, leading to cascading impacts on health and medical.

Safety and Security

- Many residential, commercial, and institutional structures could be damaged, requiring urban search & rescue (USAR) / heavy rescue mobilization. Solano County Office of Emergency Services Search and Rescue is a typed Cal-OES USAR team that can be utilized to help supplement the rural fire protection districts in these activities.
- Terrorism can induce public fear as well as create opportunity for vandalism, looting, and other cascading public safety issues.

Transportation

- Essential vehicle and rail corridors could be damaged and impassible, damaging transportation operations.

2.7.2 Equity Considerations

Terrorism and targeted violence are often meant to intimidate or coerce specific populations on the basis of their ethnicity, national origin, religion, gender and gender identity, sexual orientation, or political views. For example, there has been a troubling increase recently in violence toward minority groups throughout the country. Similarly, places of worship have been targets of violent attacks.

2.7.3 Other Considerations

First responders should be cognizant of the potential for secondary hazards/devices.

Terrorism events will require the investigation of cause and responsibility of action. Response actions will need to follow specific protocols outlined by the investigative agencies to ensure that the evidence is not compromised. Local response agencies will follow the lead and requests of State and federal investigative agencies.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

The FBI serves as the Lead Federal Agency (LFA) for crisis management for all potential and actual terrorist events, while State and local law enforcement agencies support the activities of the FBI. Solano County Sheriff's Office will serve as the lead local agency for crisis management efforts.

If federal support is requested for consequence management, FEMA will serve as the LFA supporting the local effort. Impacted Solano County fire agencies serve as the lead local agency for consequence management and may be supported by the various departments, agencies, and organizations listed below.

There will be multiple agencies involved in a response to a terrorist event, including local, State and federal resources. Coordination for the response efforts will likely involve the utilization of federal incident command and coordination sites, such as a Joint Information Center (JIC), Joint Field Office (JFO) and/or a Joint Operations Center (JOC). Figure 1 shows the organization of the FBI response structure and how federal, state, and local emergency management entities interface with one another.

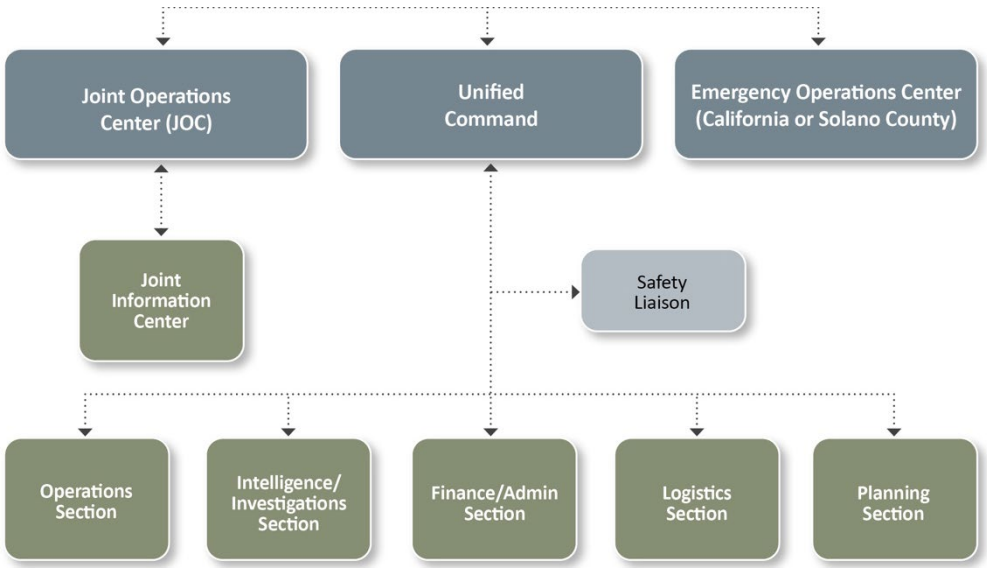

Figure 5: FBI Joint Response Structure

The JOC is an interagency command and control center, established by the FBI, for managing multiagency preparation for, and the law enforcement and investigative response to, a credible terrorist threat or incident. Similar to the Area Command concept within SEMS, the JOC also may be established to coordinate and organize multiple agencies and jurisdictions during critical incidents or special events. Following the basic principles established by NIMS/SEMS, the JOC is modular and scalable and may be tailored to meet the specific operational requirements needed to manage the threat, incident, or special event.

If activated, the JOC will be run and managed by the FBI with support from the County as needed. The County is not responsible for the management of JOC operations, only local EOC operations involving local entities and resources. The County will coordinate efforts with the State and federal levels as appropriate, providing information, support, and local representatives. Law enforcement public safety functions, such as proactive patrol and traffic control, historically are managed through the Operations Section. Criminal investigation and the collection, analysis and dissemination of intelligence are sensitive law enforcement operations that require a secure environment and well-defined organizational management structure. The JOC is designed to coordinate this specialized law enforcement investigative and intelligence activity. It provides mechanisms for controlling access to and dissemination of sensitive or classified information. The structure of the JOC supports this functional area and enhances the overall management of critical incidents and special events.

A Joint Field Office (JFO) is the primary federal incident management field structure. The JFO is a temporary federal facility that provides a central location for the coordination of federal, State, tribal, and local governments and private-sector and nongovernmental organizations with primary responsibility for response and recovery. The JFO structure is organized, staffed, and managed in a manner consistent with NIMS/SEMS principles and is led by the Unified Coordination Group. Although the JFO uses a SEMS structure, the JFO does not manage on-scene operations. Instead, the JFO focuses on providing support to on-scene efforts and conducting broader support operations that may extend beyond the incident site.

Depending on the extent of the terrorist incident, the federal response could be swift and massive. The application, integration, and coordination of the federal resources into the existing local command and control structure can be a sensitive operation.

Terrorism incidents may cause activation of operational functions such as, but not limited to, public health and medical, mass care and shelter, and public information alert and warning. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for terrorism incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Solano County Sheriff's Office

Type: Government (County)	Role: Local Lead (Crisis Management)
Responsibilities	
Serve in Unified Command with Solano County fire agency(ies).	
Develop detailed threat assessment information and communicate that information to appropriate local, State, and federal agencies.	
Increase staffing and coverage and conduct increased area and facility security measures, including patrol, vehicle inspection, and searches.	
Place special teams on stand-by and notify regional law enforcement mutual aid coordinators of the potential or actual need for mutual aid.	
Provide crisis management response coordination in the field and at the EOC, including scene security and evidence documentation and preservation.	
Support federal and state efforts as requested.	
Provide incident information to the EOC in a routinely and timely manner.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.2 Solano County Fire Agencies

Type: Special Jurisdiction	Role: Local Lead (Consequence Management)
Responsibilities	
Serve in Unified Command with Solano County Sheriff's Office.	
Increase staffing coverage.	
Coordinate consequence management response in the field and at the EOC, including fire, medical, public works, etc.	
Lead hazardous material response and decontamination efforts.	
Provide incident information to the EOC in a routinely and timely manner.	
Request resources as needed from the EOC.	
Utilize situation reports (SitReps) provided from the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.3 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Receive notifications of a change in Threat Condition and notify key agencies and jurisdictions.	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.	
Provide recommendation on the need for an emergency proclamation.	

3.2.4 Solano Public Health

Type: Government (County)	Role: Support
Responsibilities	
Increase public health surveillance and reporting.	
Coordinate medical surge activities, including level bedding and requests for medical mutual aid.	
Support decontamination of people and animals.	
Lead medical POD dispensing of MCMs.	

3.2.5 Federal Bureau of Investigation (FBI)

Type: Government (Federal)	Role: Federal Lead (Crisis Management)
Responsibilities	
Serve as LFA for crisis management.	
Coordinate federal threat assessment activities in conjunction with Solano County Sheriff's Office.	
Activate a JOC/JIC in the affected area and coordinate local, state, and federal activities (federal agency response may include, but is not limited to, FEMA, Department of Defense (DOD), Department of Energy (DOE), Department of Health and Human Services (DHHS), Environmental Protection Agency (EPA), and the Agency for Toxic Substances and Disease Registry (ATSDR).	

3.2.6 Federal Emergency Management Agency (FEMA)

Type: Government (Federal)	Role: Federal Lead (Consequence Management)
Responsibilities	
Serve as LFA for consequence management.	
Coordinate consequence management in coordination with Solano County fire agencies.	
Support damage assessment and cost recovery activities.	

3.2.7 United States Coast Guard

Type: Government (Federal)	Role: Support
Responsibilities	
Assist in response to any incidents that take place on waterways, etc.	
Coordinate consequence management in coordination with Solano County fire agencies.	

Support damage assessment and cost recovery activities.

3.2.8 95th National Guard Civil Support Team

Type: Government (State)	Role: Support
Responsibilities	
Assist in determining the nature and extent of an attack, including current and projected consequences.	
Provide expert technical assistance on WMD operations, including identification of agents and substances and advising on response measures and requests for military support.	

3.2.9 Central California Intelligence Center (CCIC)

Type: Government (State)	Role: Support
Responsibilities	
Provide information sharing, analysis, criminal intelligence, and identify, prevent, protect against, mitigate, and assist in terrorism response and recovery.	
Provide investigative case support.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in a terrorism response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Terrorism-related courses available through FEMA Independent Study are:

- IS-2500 National Prevention Framework, an Introduction
- IS-2600 National Protection Framework, an Introduction

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Terrorism-related courses available through FEMA Residential/Non-Residential/Indirect offerings are:

- E912: Preparing Communities for a Complex Coordinated Attack

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

Center for Domestic Preparedness (CDP) Courses

- FFE PER-202 Field Force Extrication Tactics
- ICAT PER-922 Integrating Communications, Assessment, and Tactics
- LEPM PER-264 Law Enforcement Protective Measures for Complex Incidents
- LEV2 AWR-936-V2 The Right to Protest and Law Enforcement Response
- LEV5 AWR-936-V5 Understanding Crowd Dynamics for Mitigation and De-Escalation of Large-Scale Events
- OLS V18 AWR-933-V18 Suspicious Activity Reporting – Working with Your Local Fusion Center
- AWR-933-V14 Lone Wolf Threat in Every Town USA

FEMA National Training and Education Division (NTED)

- PER-328-W: Situation Assessment for Complex Attacks
- PER-335: Critical Decision Making for Complex Coordinated Attacks
- PER-353: Active Shooter Incident Management with Complex Incidents
- PER-277: Advance Tactical Operations WMD Interdiction
- PER-232: Initial Law Enforcement Response to Suicide Bombing Attacks
- PER-356: Introduction to Tactical Emergency Casualty Care for First Care Providers

Center for Radiological/Nuclear Training (CTOS)

- PER–243: Primary Screener / Personal Radiation Detector (PRD)
- PER–245: Secondary Screener / Radio-Isotope Identification Device (RIID)
- PER–246: Backpack Operations for the Primary Screener
- PER–307: Introduction to Nuclear Detonation Effects and Response Strategies
- PER–332: Population Monitoring at Community Reception Centers
- PER–348: Operations Level Response to Radiological/Nuclear WMD
- PER–350: Preventive Radiological/Nuclear Detection (PRND) Maritime Operations
- PER–354: Response to Radiological/Nuclear WMD Incidents
- PER–355: Radiation Instruments Employment
- PER–370: Operations Level Response to Radiological/Nuclear WMD for Emergency Medical Services/Healthcare
- PER–388: Radiological Operations Support Specialist (ROSS)

Regional Fusion Center/Threat Assessment Center Training

- CCIC Terrorism Liaison Officer (TLO)
- NCRIC Terrorism Liaison Officer (TLO)
- CCIC/NCRIC - TLO ADV: Domestic Violent Extremists
- CCIC/NCRIC - TLO ADV: Behavioral Threat Assessment: Preventing the Active Shooter
- CCIC/NCRIC - TLO ADV: Advanced Threat Assessment: Preventing Mass Casualty Events
- CCIC/NCRIC - TLO ADV: Bomb Making Awareness Course
- CCIC/NCRIC - TLO ADV: Bomb-making Materials Awareness Program (BMAP) Community Liaison Course
- CCIC/NCRIC - TLO ADV: Extremist Recruitment: Awareness for Public Safety
- CCIC/NCRIC - TLO ADV: Funding Terrorism & Domestic Sex Trafficking
- CCIC/NCRIC - TLO ADV: Policing Violent Extremism-1 (International Terrorism)
- CCIC/NCRIC - TLO ADV: Policing Violent Extremism-2 (Domestic Terrorism)
- CCIC/NCRIC - TLO ADV: Sovereign Citizen Extremists
- CCIC/NCRIC - TLO ADV: Targeting, Sabotage & Disruption of Public Utilities
- CCIC/NCRIC - TLO ADV: Vulnerability Assessments for School Facilities

Additional Training

- Bay Area UASI - Annual Bay Guardian/Bay Ferry Maritime Emergency Preparedness and Security Exercise
- AWR-122 Law Enforcement Prevention and Deterrence of Terrorist Acts, Louisiana State University
- AWR-160-W WMD/Terrorism Awareness for Emergency Responders, Texas Engineering Extension Service
- AWR-230 Incident Response to Terrorist Bombings, New Mexico Institute of Mining and Technology
- PER-335 | Critical Decision Making for Complex Coordinated Terrorist Attacks, Louisiana State University
- Center for Homeland Defense and Security, self-study course on Understanding Terrorism: A Social Science View on Terrorism
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- Homeland Security Presidential Directive-5 (HSPD-5).

State

- California Penal Code §409, §409.5, §409.6.
- Hertzberg – Alarcon California Prevention of Terrorism Act; Penal Code sections 11415-11419

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- FEMA. (2002). *Managing the Emergency Consequences of Terrorist Incidents*. Available at https://www.fema.gov/pdf/plan/managingemerconseq.pdf
- DHS. (2022). *National Terrorism Advisory System*. Available at https://www.dhs.gov/national-terrorism-advisory-system

State

- CalOES. (2017). *State of California Emergency Response Plan* annexes. Available at https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/planning-preparedness/state-of-california-emergency-plan-emergency-support-functions/

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APPENDIX HH: UTILITY DISRUPTION

Last Updated: April 2024

Incident/Unified Command	• Utility companies • Solano Office of Emergency Services
Support Agencies and Organizations	• Solano County Public Works • Solano County Sheriff's Office • Solano County Fire Agency(ies) • Emergency Medical Services • Solano County Department of Health and Human Services

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Utility Disruption Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from utility disruption. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan, under which the County will respond and operate in the event of utility disruption.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding utility disruption incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from utility disruption incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of utility disruption and for supporting a multijurisdictional or complex response with cities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano County's utility disruption response strategy is based on the following objectives:

- Maintain or quickly restore community lifelines.
- Ensure the provision of life-saving resources for utility dependent customers.
- Minimize economic impacts.
- Provide continuity of operations for essential services.
- Keep the public informed of response activities.

1.2.2 Critical Tasks

During a utility disruption response, critical tasks may include the following:

- Coordinate with utility providers on restoration progress and timelines.

- Coordinate calls with key agencies to facilitate updates and receive information on potential or actual impacts on lifeline services and critical facilities.
- Anticipate and accommodate the needs of vulnerable populations, including people with disabilities and access and functional needs (DAFN), and provide culturally relevant and inclusive information.
- Provide timely, verified, and actionable information to the public, and manage rumors and misinformation.
- Support continued operation of lifeline services and critical facilities during extended outages.

1.3 HAZARD SITUATION

1.3.1 General

Solano County is at risk of utility outages at any time of year due to mechanical failure, weather impacts, or malicious acts of disruption.

California designates disruptions as either intentional or unintentional. Some intentional incidents may span several subclassifications:

Intentional

- **Scheduled.** Some disruptions are intentional and can be scheduled. For example, a disruption may be necessary when components of the system are taken out of service for maintenance or upgrading. Scheduled intentional disruptions can last from several minutes to several hours or days. Customers are usually notified in advance.
- **Unscheduled.** Some intentional disruptions must be done "on the spot." As a result, advance notice cannot be provided. For example, fire services or law enforcement may request a disruption in service during a fire or an accident.
- **Demand-Side Management.** Some customers (i.e., on the demand side) have entered into an agreement with their utility provider to curtail their demand for service during periods of peak system loads. In return for agreeing to these disruptions, these customers receive a lower rate and/or a rebate.
- **Load Shedding.** When the system is under extreme stress due to heavy demand and/or failure of critical components, it is sometimes necessary to intentionally interrupt the service to selected customers to prevent the entire system from collapsing. In such cases, customer service (or load) is cut, sometimes with little or no warning. One form of load shedding called a "rotating blackout" involves cutting service to selected power customers for a predetermined period (usually not more than two hours). As power is restored to one block of customers, power to another block of customers is interrupted to reduce the overall load on the system.
- **Public Safety Power Shutoff (PSPS) Program.** The PSPS program is designed to enhance community wildfire safety and is the intentional de-energization of distribution and transmission lines by a power utility to help reduce the likelihood of a wildfire. In PSPS events, the utility

provider has a legal responsibility to provide Community Resource Centers (CRCs) and support medical baseline (energy-dependent) customers.

Unintentional/Unplanned

Unplanned disruptions are outages that come with little to no advance notice. This type of disruption is the most problematic. Examples of unplanned disruptions include:

- Accident by the utility or utility contractor or others.
- Malfunction or equipment failure due to age, improper operation, excessive operation, or manufacturing defect; special subcategories cover broken fuse links and underground cable, joint, or termination failures.
- Overload on either the utility's equipment or a customer's equipment.
- Reduced capability, such as equipment that cannot operate within its design criteria.
- Vandalism or intentional damage.
- Weather, including ice/snow, lightning, wind, earthquake, flood, and broken tree limbs, taking down power lines.
- Wildfire that damages transmission lines.

Although all utilities are at risk for a wide range of reasons, the most common utility impacts in recent years are due to PSPS events. In most cases, PG&E (Solano County's primary utility provider) notes that it expects to be able to restore power within 24 to 48 hours after extreme weather has passed. However, depending on weather conditions or if any repairs are needed, outages could last multiple days.

Additional details regarding PSPS can be found on the CPUC PSPS website (https://www.cpuc.ca.gov/psps/) and on PG&E's PSPS website (https://www.pge.com/en_US/residential/outages/public-safety-power-shuttoff/learn-about-psps.page?WT.mc_id=Vanity_psps).

A list of all Solano County utility providers may be accessed at https://solanoedc.org/data-center/data/utilities.

1.3.2 Impacts

Utility disruption incidents have the potential to cause the following impacts on community and public safety:

- **Water Disruption**
  - Cleaning and sanitation
  - Cooking and drinking
- **Wastewater Disruption**
  - Sewage backup in homes and businesses

    - Environmental damage, including pollution of surface waters, groundwaters, soil, and even air
- **Communication Disruption**
    - 911 reporting
    - Business communication
    - Education delivery
    - Social relations
- **Power Disruption**
    - Heating and cooling of homes and businesses
    - Refrigeration of food and medical supplies
    - Use of some type of electrical dependent durable medical equipment, including oxygen
    - Cooking
    - Electrical dependent well water
    - Traffic lights

These impacts can be interrelated (e.g., a power outage may impact water, wastewater, and communication utilities).

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- Utility companies are primarily responsible for the restoration of utility services. Solano County may provide support services until utility services are restored.
- Public and private sector organizations impacted by long-term utility disruption will require the activation of continuity plans to sustain essential functions, provide critical services to the affected population, and ensure continuity of government at all levels.
- Governmental essential functions performed from primary or alternate locations may rely on backup power support, which could be limited.
- Some utility outages may be planned, such as PSPSs.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, and short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant utility disruption incident include:

- Red Flag Warnings declared by the National Weather Service.
- Fire threat to electric infrastructure.
- Low humidity levels.
- High winds and high wind gusts.
- Dry vegetation that could serve as fuel for a wildfire.
- Real time observations by on-the-ground utility experts.
- Flooding and severe storms.
- Messaging from threat actors indicating the potential for a cyberattack or other intentional harm to utility systems.

2.2.2 Notification or Confirmation

Notification or confirmation of a significant utility disruption will most often come from the utility provider, though knowledge may also come firsthand or through the public.

2.3 CONDUCT OF PUBLIC WARNING

2.3.1 PSPS Events

Public alert and warning in PSPS events must follow rules established by the CPUC. The current timeline for public notification is as follows:

- **Severe weather forecasted**. Up to a week ahead of time.
- **PSPS Watch notification** (outages likely). Up to two days before shutoff and again a day before.
- **PSPS Warning notification** (outages required). One to four hours before shutoff; these are required to be sent 24 hours a day, although phone calls are restricted between 9 p.m. and 8 a.m.
- **Power is shut off.** At shutoff, these are required to be sent 24 hours a day, although phone calls are restricted between 9 p.m. and 8 a.m.
- **All clear.** Once the weather threat has passed, this will include information about restoration times; these are required to be sent 24 hours a day, although phone calls are restricted between 9 p.m. and 8 a.m.

2.3.2 Non-PSPS Events

Public alert and warning for other intentional and unintentional utility disruption incidents will be determined based on the incident. In all incidents, the utility is the primary source of information; but if incidents are widespread, long-lasting, or a cascading effect of another hazard incident, information may be augmented and amplified by Solano OES or the Emergency Operations Center (EOC).

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to a utility disruption threat include:

- **Public messaging.** Public messaging should be timely and actionable, providing residents and visitors with the information they can use to mitigate against or respond to impacts of utility disruptions. This may include recommendations to protect refrigerated food and medicines, obtain supplies, shelter-in-place, or go to a community center for services. Information may have to be delivered using alternative methods, such as door-to-door notification, community message boards, or traplines if communication systems are impacted.

2.5 STABILIZATION ACTIONS

Incident stabilization actions that can be taken in response to utility disruption are described below.

All Utility Disruptions

- **Prioritization.** Rapid utility restoration is critical for incident stabilization and to reduce cascading effects. Utility restoration should prioritize critical infrastructure important to community lifelines and support of vulnerable populations. Although utility restoration is the responsibility of utility companies, the County can support this effort through information collection and sharing with utility counterparts. Information that may be shared includes County information on:
  - Impacts to critical facilities and cascading effects.
  - Number of individuals affected with imminent life safety impacts (e.g., those that rely on durable medical equipment for breathing support).
  - Current and forecasted weather.
  - Multi-incident or cascading response (an active, overlapping disaster).
- **Logistics support.** The County may support utility companies with logistics support, such as making locations available for resource staging, facilitating placement of CRCs, and assisting with commodity distribution.

Water Utility Disruption

- **Water distribution.** Water distribution may include enacting point-of-distribution (POD) sites or delivery to meet minimal requirements for public health and safety.
- **Water purification.** Utility disruption may include boil notices.

Wastewater Utility Disruption

- **Generator or manual pumping of lift stations.** Utilities may need to support lift station operation on site. This can cause a large drawdown of personnel.
- **Portable toilets.** In some instances, it may be necessary to provide portable toilets for community use. The use of portable toilets necessitates wraparound services, including pumping and cleaning.

Communication Utility Disruption

- **Alternate messaging.** Public information may need to be distributed using community message boards, AM/FM radio, trapline, and door-to-door distribution methods.
- **Direction for 911 service.** The community can be directed to their nearest fire or police station to obtain access to 911 services.
- **HAM radio support.** Licensed HAM radio operators may be deployed to community centers and other critical points of contact to support critical information transmission.

Power Utility Disruption

- **Heating or cooling centers.** Some power outages may necessitate the need for heating or cooling centers, such as when disruptions occur during extreme temperatures.
- **Fuel distribution.** Fuel distribution may include enacting point-of-distribution (POD) sites or delivery to maintain generator operation and critical fuel supplies for essential services.
- **Portable or static charging centers.** Those with electric-dependent durable medical equipment and other vulnerable populations may need support through County or utility-provided portable or static charging centers.
- **Generator power for critical facilities.** Generators will need to be activated to support critical facilities; this will include the need for routine maintenance, fueling, and reporting to Yolo Solano Air Quality Management District.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** A thorough accounting of damage to the impacted area should be completed as quickly as possible; this assessment should include not only the financial impact but also account for operational capacity (e.g., in the case of power outages, private businesses may wish to determine loss of revenue from spoiled food, etc., for insurance and liability reasons).
- **Recovery assistance.** Economic impacts may not be initially apparent but may appear over a longer period and last for months or years. As a result, the federal government may provide long-term recovery assistance for months or years. Fed FUNDS presents information tailored to water and wastewater utilities on federal disaster and mitigation funding programs from EPA, FEMA, HUD and SBA (https://www.epa.gov/fedfunds).

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from a utility disruption.

2.7.1 Lifeline

Communications

- Communication outages (direct, or indirect from power disruption) can impact 911, dispatch, and other first responder transmissions.
- Air conditioner (AC) systems are often needed to serve areas that contain heat generating equipment such as IT network server rooms and communication equipment rooms. Providing backup generation for AC only to the portions of a critical facility that need to be air conditioned to allow the facility to function and provide critical services is often appropriate.

Energy

- Transmission line capacity will decline at higher temperatures, reducing power availability; extreme heat may also cause power lines to droop.
- Extreme temperatures increase demand for cooling and heating capabilities, which may result in electricity shortfalls.
- Climate-related incidents, such as increases in extreme heat and wildfires, will increase the likelihood of public safety power shutoffs, limiting access to power.
- Extreme flooding or severe weather will threaten energy infrastructure.

Food, Hydration, Shelter

- Both power and water utilities have the potential to negatively affect food safety. Food must be kept at 40°F or lower to prevent the growth of bacteria that can cause food poisoning. Potable water is necessary for cooking and cleaning. Utility disruptions can impact both grocery stores and restaurants, causing food shortages. At home, households may lose stored food and be unable to provide the sanitation necessary to prevent foodborne illness.
- Water systems, particularly well water, often rely on electrical power to operate. Power outages can cut off water supply to communities that rely on these systems; this is especially true in unincorporated areas not served by municipal systems.

Hazardous Materials

- Utility outages may negatively impact specialized conveyance assets and capabilities to identify, contain, and remove pollution, contaminants, oil, or other hazardous materials and substances affecting air, water, and soil quality.

Health and Medical

- Medical patients requiring regular dialysis treatments rely on functional transportation systems, clean water, and electrical power for regular treatments.
- Heating, ventilation, and air conditioning (HVAC) equipment controls the temperature and humidity levels within a building and provides fresh air for ventilation. In cold climates, heating is required for both occupant protection and to prevent damage from frozen pipes. In hot climates, air conditioning (AC) equipment is needed when interior temperatures and humidity levels must be kept within specific levels. With few exceptions, HVAC systems' components require power to operate and if they need to operate when utility power is lost, require standby power.
- Municipal sewer or wastewater systems often have lift pumps, particularly in areas where local topography prevents sewage from being conveyed by gravity. Like lift pumps within buildings, municipal sewer pump stations have sumps, generally called wet wells, where sewage can collect when the lift pumps cannot operate. Municipal lift stations can often accommodate longer-duration outages than the sewer sumps within buildings. Twelve to 24 hours of storage is not uncommon. When lift stations lose power for longer durations, sewage levels in municipal wastewater collection systems can rise and can eventually enter buildings that are connected to the municipal system, particularly buildings that are not equipped with backwater valves.

Safety and Security

- Fire detection, alarm, and communication equipment detect the presence of fire or smoke, either through automatic means, manual fire alarm initiation, or the operation of fire suppression systems such as sprinklers; provide alarms to notify building occupants of a fire; and communicate the detection of a fire to alert emergency personnel. However, like exit and egress lighting, the emergency power supplies required by code for fire detection, alarm, and communication equipment are often of relatively short duration.
- Fire pumps for fire suppression systems boost water system pressures and ensure adequate water flow to sprinklers for fire suppression. When fire pumps are only powered from electrical utilities and not from standby or emergency power sources, local fire officials may limit how long facilities equipped with fire pumps can remain occupied when utility power is lost. If critical facilities must remain operational beyond that period, standby power to fire pumps should be provided. Diesel-driven fire pumps, which do not need electrical power to operate, are an alternative when supplying fire pumps from standby power sources is not practical.

Transportation

- Electrical outages can significantly impact transportation systems by disrupting traffic lights and roadway lighting.

2.7.2 Equity Considerations

Utility disruptions increases risks to the public due to inability to use medical devices, spoilage of food and medicines, and disruption to infrastructure, such as supply of clean water and electricity used to run home medical equipment, such as lift chairs and ventilators. The electricity-dependent population are

people who would be seriously affected by a disruption in electrical service, particularly individuals who use electrically powered or battery-dependent medical support equipment, people with disabilities, and others with access and functional needs. For those people who use medical support equipment (e.g., respirators, automatic medication dispensers), short-term disruptions can be serious or even life threatening. The U.S. Department of Health and Human Services provides data to support aid to these populations during electrical outages through the emPOWER Program. Information on this program can be found at https://empowerprogram.hhs.gov/.

For Medical Baseline customers, utilities may place live calls to customers who are not reached by the initial automated alerts and may send a utility representative to notify customers they are unable to contact with the live call. If the customer does not answer the in-person contact, utilities may leave an informational door hanger at the customer's residence.

2.7.3 Climate Change

Increasing temperatures and more frequent and severe droughts are expected to heighten competition for water for urban/residential use, agriculture, and energy production.

Weather extremes and more severe storms will strain critical utility infrastructure.

2.7.4 Other

Utility companies may request land to support a construction/logistics yard and or a place to set up their organization's Incident Management Team (IMT) for large scale reconstruction support after a major fire, storm or land movement issue.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Utility disruption incidents are led by utility companies, coordinated by Solano OES, and may be supported by the various departments, agencies, and organizations listed below. Significant outages may necessitate the activation of the Emergency Operations Center (EOC) and may cause activation of operational functions such as, but not limited to, mass care and shelter, damage assessment, and public health and medical. Refer to these annexes for an understanding of the organizational structure and roles and responsibilities associated with carrying out these functions.

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for utility disruption incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Utility Company(ies)

Type: Public or Private Sector	Role: Lead
Responsibilities	
Provide pre- ongoing- and post-incident information to the public and government partners, including specific instructions for DAFN populations.	
Facilitate prompt restoration of utilities, prioritizing critical infrastructure and utility-dependent customers first.	
For electric utilities during PSPS events, establish and operate CRCs.	

3.2.2 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate/Support
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	
Communicate with Cal OES and the utility provider(s); keep them apprised of local situations, and request additional resources as needed.	
Determine the possible impact on critical facilities and/or individuals dependent on electric power.	
Establish response priorities.	
Activate public alert and warning if necessary.	
Coordinate the activation of the Joint Information Center (JIC) as needed.	
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC will then: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.	
Provide recommendation on the need for an emergency proclamation.	

3.2.3 Solano County Public Works

Type: Government (County)	Role: Support
Responsibilities	
Check the status of local government communication equipment and the availability of generators and fuel.	
Position crews to operate backup equipment such as lift station pumps or generators.	
Dispatch personnel to support response such as traffic control or critical facility needs.	

3.2.4 Solano County Sheriff's Office

Type: Government (County)	Role: Support
Responsibilities	
Dispatch personnel to deal with traffic and security issues.	
Facilitate evacuation/relocation to shelters if needed and activated.	
Identify backup alert and warning capabilities if the existing alert and warning systems are impacted.	

3.2.5 Solano County Fire Agencies

Type: Government (County)	Role: Support
Responsibilities	
Dispatch personnel to deal with traffic and medical issues.	
Provide support to utilities dealing with downed power lines.	

3.2.6 Emergency Medical Services

Type: Government (County)	Role: Support
Responsibilities	
Dispatch personnel to deal with medical issues.	
Provide transportation support to medical electricity-dependent individuals to CRCs and shelters as needed.	

3.2.7 Solano County Department of Health and Human Services - Public Health Division

Type: Government (County)	Role: Support
Responsibilities	
Issue boil water notices as necessary.	
Coordinate air, water, and soil sampling.	
Retrieve and share recent emPOWER data to support identification of vulnerable populations.	

4 HAZARD SPECIFIC TRAINING

The following courses are suggested for those involved in a utility disruption response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Utility disruption-related courses available through FEMA Independent Study:

- IS-553 Coordination between Water Utilities and Emergency Management Agencies
- IS-815 ABCs of Temporary Emergency Power
- IS-913 Critical Infrastructure Security and Resilience: Achieving Results through Partnership and Collaboration

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Utility disruption-related courses available through FEMA Residential/Non-Residential/Indirect offerings:

- No courses were identified.

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- AWR-213 Critical Infrastructure Security and Resilience Awareness, Texas Engineering Extension Services
- MGT-342 Strategic Overview of Disaster Management for Water and Wastewater Utilities, Texas Engineering Extension Services
- MGT-343 Disaster Management for Water and Wastewater Utilities, Texas Engineering Extension Services
- MGT-345 Disaster Management for Electric Power Systems, Texas Engineering Extension Services

- MGT-414 Critical Infrastructure Resilience and Community Lifelines (virtual available), Texas Engineering Extension Services
- Training available through local utility providers (electric, gas, water/wastewater, etc.)
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in emergency response, training should incorporate DAFN planning considerations and representation.

5 HAZARD SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- Critical Infrastructure Information Act of 2002 (P.L. 107-296)
- Emergency Reconstruction of Interstate Natural Gas Facilities Under the Natural Gas Act (18 CFR, Parts 153, 157, and 375)
- Energy Policy Act of 2005 (P.L. 109-58)
- Natural Gas Act (15 U.S.C., Chapter 15b)
- Power Plant and Industrial Fuel Use Act (FUA) (42 U.S.C.)

State

- California Executive Order No. D-38-01
- California Public Utilities Code Sections 451 and 399.2(a)

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- FEMA. (2023). *Reducing "Loss of Utility" Impacts to Critical Facilities.* Available at https://www.fema.gov/sites/default/files/documents/fema_reducing_loss_utility_impacts_critical_facilities_90_percent-1.pdf
- Environmental Protection Agency. (n.d.). *Federal Funding for Water and Wastewater Utilities in National Disasters (Fed FUNDS)*. Available at https://www.epa.gov/fedfunds

State

- Cal OES. (2013). California Emergency Support Function 12: Utilities Annex. Available at https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/12-Executive-Summary-Utilities-Annex.pdf

- Cal OES. (2020). *Electric Power Disruption: Toolkit for Local Government.* Available at https://www.caloes.ca.gov/wp-content/uploads/2023/07/Electric-Power-Disruption-Toolkit-Update-January-2020-v2-1.pdf
- CPUC. (n.d.). *Public Safety Power Shutoffs*. Available at https://www.cpuc.ca.gov/psps/

Local

- Solano County. (n.d.). *PSPS Information*. Available at https://www.solanocounty.com/depts/oes/alertsolano/emergency.asp
- PG&E. (n.d.). *Learn about PSPS*. Available at https://www.pge.com/en_US/residential/outages/public-safety-power-shutoff/learn-about-psps.page?WT.mc_id=Vanity_psps

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APPENDIX II: WILDFIRE

Last Updated: April 2024

Incident /Unified Command	• FRA, SRA, and LRA Fire Response Agencies
Support Agencies and Organizations	• Solano Office of Emergency Services

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

The purpose of the Solano County Wildfire Appendix (Appendix) to the Solano County Emergency Operations Plan (EOP) is to identify and describe the County's specific concerns, capabilities, training, agencies, and resources to mitigate against, prepare for, respond to, and recover from wildfire. The Appendix is intended to:

- Establish the policies and procedures beyond those listed in the Base Plan under which the County will respond to and operate in the event of a wildfire.
- Identify roles and responsibilities of County departments, agencies, and partners, specifically regarding wildfire incidents.
- Provide decision-makers with options that can be used to prepare for, respond to, and recover from wildfire incidents.

The overall emergency management concepts, policies, and procedures contained in the EOP remain in place.

1.2 SCOPE

This Appendix has been developed to address the needs of unincorporated Solano County regarding the issues of wildfires and to support a multijurisdictional or complex response with municipalities in the Solano County Operational Area (OA).

1.2.1 Incident Objectives

Solano's wildfire response strategy is based on the following objectives:

- Ensure the safety of the public and response personnel.
- Protect and maintain lifelines.
- Manage a coordinated response effort.
- Protect environmentally sensitive and culturally important areas.
- Minimize economic impacts.
- Keep the public informed of response activities.

1.2.2 Critical Tasks

During a wildfire response, critical tasks may include the following:

- Engage subject matter experts to understand the scope and severity of the threat.

- Provide timely, verified, culturally competent, accessible, and actionable information to the public, and manage rumors and misinformation.
- Evacuate and shelter individuals at risk from wildfire.
- Locate individuals who have been affected by wildfires; rescue and transport as able without risking the safety of first responders.
- Establish perimeters around areas of high risk and enact road closures on threatened or impacted roadways.
- Ensure access to clean air, particularly for those at high risk.
- Restore the function of lifelines and critical facilities promptly.

1.3 HAZARD SITUATION

1.3.1 General

A wildfire is any uncontrolled fire occurring on undeveloped land that requires suppression. Wildfires can be ignited by lightning or by human activity, such as smoking, campfires, equipment use, or arson.

The areas with the highest risk for wildfire are in western Solano County in the foothills and mountainous watershed areas as well as in grasslands located throughout the county. Portions of the Vaca Mountains west of Pleasants Valley have been designated as Very High Fire Hazard Severity Zones. Before the urbanization of nearby lowlands, the vegetation in these mountainous areas was naturally maintained by periodic wildfires. As nearby lands continued to be developed, natural wildfires were suppressed, resulting in the further buildup of fire-prone brush and woodlands.

Solano County has dry summers where little to no rain falls from early June through late October. The county experiences 28 inches of annual rainfall, depending on location, elevation, and weather patterns, and the declared fire season typically lasts from early May to mid to late November.

Local, state, tribal, and federal organizations all have legal and financial responsibilities for wildfire protection. In many instances, two fire organizations have dual primary responsibility on the same parcel of land—one for wildfire protection and the other for structural fire protection. These are addressed in Cal. Pub. Res. Code § 4291.5 and Cal. Health & Safety Code § 13108.5.

Figure 1 on the next page depicts wildfire risk exposure within Solano County.

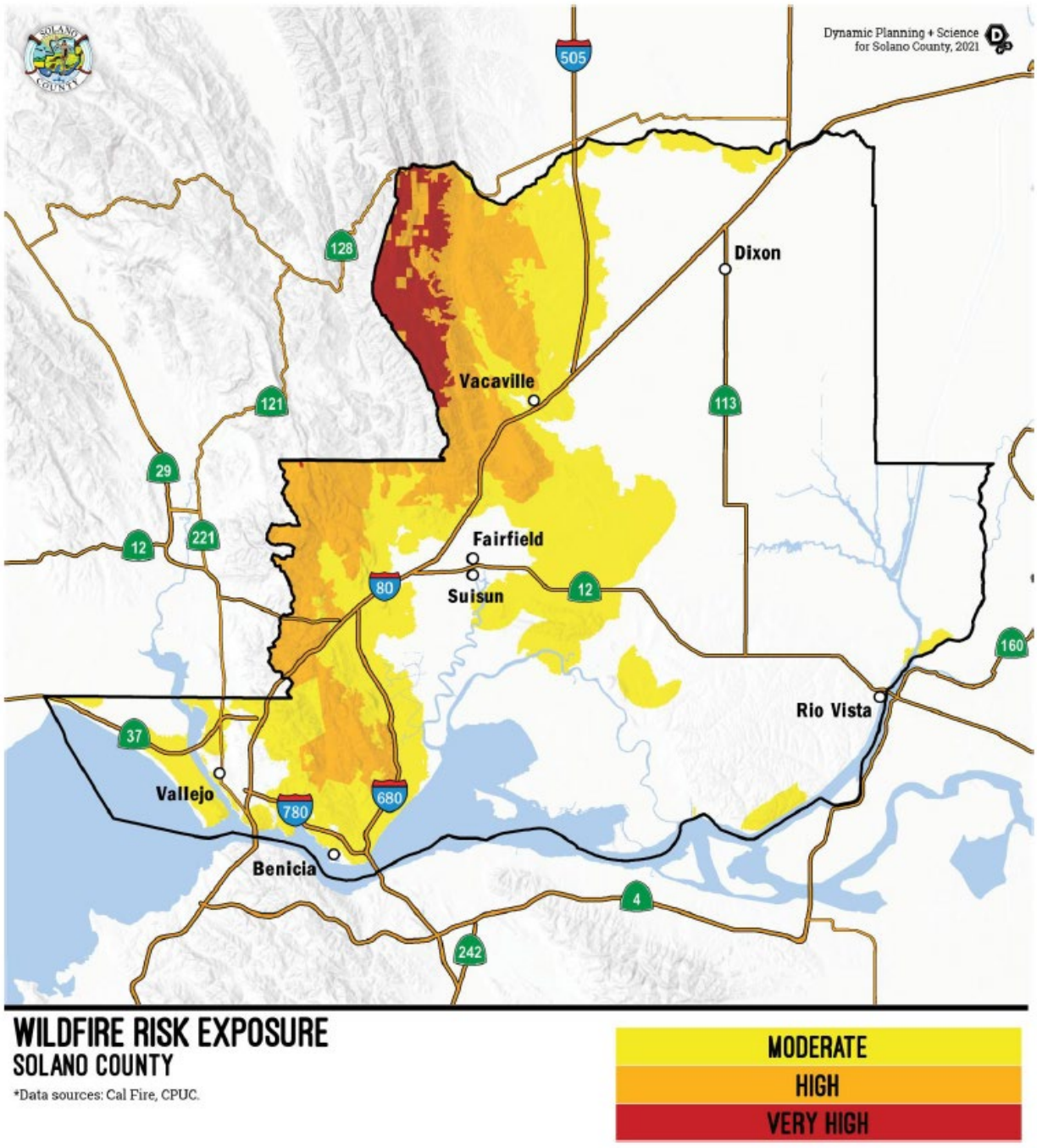

Figure 6: Wildfire Risk Exposure in Solano County (Source: MJHMP)

This section is adapted from the Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Additional details regarding wildfire in Solano may be found in the MJHMP: Volume 1.

1.3.2 Impacts

Wildfire incidents have the potential to cause the following impacts on community and public safety:

- Injury or loss of life
- Increased risk of heart attack, stroke, lung cancer, and a decline in cognitive function due to wildfire smoke inhalation
- Infrastructure damage, including transportation and communication systems
- Disruptions to government, privately provided services, and the economy
- Environmental damage, including contamination of water supplies
- Contamination of water supplies
- Costs associated with wildfire-fighting services, clean-up operations, and repairs to damaged structures
- Reduction in ability to fight day-to-day emergency calls due to overextended use of assets

1.4 PLANNING ASSUMPTIONS

The following assumptions were taken into consideration during the development of this Appendix:

- Wildfire incidents may develop slowly or may develop suddenly with little warning.
- Wildfires have the potential to disrupt community lifelines for weeks or months.
- Residents may be displaced, requiring shelter and social service needs. Sheltering activities could be short-term or long-term, depending on the severity of the incident.
- Weather is the most variable and uncontrollable factor in wildland firefighting.
- Topography and wind contribute to fire behavior.
- Wildfire conditions may trigger Public Safety Power Shutoffs (PSPS) which can impact the capacity for public alert and warning.

2 CONCEPT OF OPERATIONS

2.1 GENERAL

The concept of operations provides a guide for decision-makers that includes hazard assessment; conduct of public warning; selection and implementation of protective actions, short-term stabilization actions, short-term recovery actions; and special considerations. An effective response may require coordination at all levels of government, the private sector, and community-based organizations (CBOs).

2.2 HAZARD ASSESSMENT

2.2.1 Indicators

Indicators of the potential for a significant wildfire incident include:

- Storms that produce lightning.
- Accidents that ignite vegetation, shrubs, and trees.
- Drought conditions.
- High winds and gusts.
- Long durations of low humidity.
- Fire weather forecasts.
- National Interagency Coordination Center (NICC) predictive services.
- Active arsonists.

2.2.2 Fire Forecasting

Fire weather forecasts are available through the National Weather Service (NWS) at https://www.weather.gov/wrh/fire.

Fire predictive services are available through the National Interagency Coordination Center (NICC) at https://www.nifc.gov/nicc/predictive-services/outlooks.

2.2.3 Notification or Confirmation

Notification or confirmation of a significant wildfire event will most often come from fire agency personnel or the public.

2.3 CONDUCT OF PUBLIC WARNING

Public alert and warning are conducted by Solano OES, using multiple methods. For more information, see the Public Information, Alert and Warning Annex to the EOP.

2.4 PROTECTIVE ACTIONS

Proactive actions that may be implemented in response to a wildfire threat include:

- **Public messaging.** Public messaging should inform the public about actions they can take to mitigate the threat to their lives and property and may include messages from Ready-Set-Go and Firewise programs. Communcations outreach needs to be culturally competent and accessible to

diverse populations and people with DAFN and utilize multilple dissemination platforms to ensure a timely, expanded geopgraphical reach to meet the challenge of potentially rapid onset and movement of wildfire spread.

- **Evacuations.** Evacuations should be implemented by authorities whenever wildfire poses a threat to life and infrastructure. Evacuation support resources (and all public information messaging regarding the evacuation) must be accessible and culturally competent. These evacuations should stay in place until experts have certified that the threat has ceased.
- **Shelter-in-place.** Residents and visitors may be advised to shelter-in-place and to create a clean air room within their home or facility to reduce exposure to wildfire smoke.
- **Clean air shelter.** Clean air shelters may be established at public facilities to provide safety from wildfire smoke for those unable to create clean air rooms of their own.
- **Road closures / perimeter establishment.** Road closures / perimeter establishments should be put in place around locations in which active wildfire poses a threat to life and infrastructure. These road closures / perimeter establishments should remain in place until experts have certified that the threat has ceased.

2.5 STABILIZATION ACTIONS

Stabilization actions that may be implemented in response to wildfire include:

- **Firefighting.** Crews should be prepared to respond using direct and/or indirect firefighting methods. Resource limitation may require prioritization of incident response.
- **Medical aid.** Provision of Emergency Medical Services (EMS) and rapid transport to appropriate level care facilities for injured persons, first responders, and others.
- **Utility restoration.** The rapid restoration of utilities is critical to stabilize the incident and prevent further deterioration of the incident.
- **Debris removal.** Debris from wildfires can block roads and make access to portions of the community impassable.
- **Mass care.** Mass care, including shelter operations for populations displaced from the events of wildfire, should be mobilized quickly.

2.6 SHORT-TERM RECOVERY ACTIONS

Short-term recovery operations may include:

- **Damage assessments.** Accounting for the amount of damage sustained to infrastructure should be completed as quickly as possible. This assessment should include not only the financial damages but also account for operational capacity.
- **Repopulation.** Providing structural damage evaluation and other safety clearances to open neighborhoods and business districts for repopulation is critical for housing and economic recovery.

- **Mass care.** Mass care, including shelter operations for populations displaced from the events of wildfire, may need to be coordinated through the Federal Emergency Management Agency (FEMA) and CBOs for longer-term recovery operations.

2.7 SPECIAL CONSIDERATIONS

The following should be considered when preparing for, responding to, and recovering from wildfires.

2.7.1 Lifeline Considerations

Communications

- Wildfires may cause disruptions to communication systems, particularly in regions experiencing Public Safety Power Shutoff (PSPS) events.

Energy

- Wildfires may cause disruptions to energy systems, by direct damage or as a result of preventative power shutoffs initiated by the power company.

Food, Hydration, Shelter

- Fire damage may result in greater losses of crops, a decrease in crop quality, or changes in harvesting methods that harm productivity.
- Livestock will likely suffer more direct losses due to wildfire and smoke exposure, including burns, burn-related deaths, and pneumonia. Additionally, larger and more intense wildfires may lead to greater indirect losses, such as reduced conception rates, lower birth weights, and reductions in animal milk production.
- As wildfires increase in frequency and scale, additional resources and awareness will be needed to address short-term sheltering, long-term housing, safe drinking water, and sustained food supplies.
- Increasing numbers of wildfires will create more damage to watersheds, harming both water quality and water supplies. Soot and ash introduce pollutants to lakes and streams, with detrimental downstream effects on wildlife and human health.

Hazardous Materials

- Hazardous materials facilities may be threatened by an increase in the number and extent of wildfires.

Health and Medical

- An increased rate of mental health disorders post-wildfire has been found in both adults and children and may grow with increasing wildfire activity.
- Wildfires will continue to affect air pollution and regional air quality. The effects of wildfire smoke range from eye and respiratory tract irritation to more serious disorders, including

reduced lung function, bronchitis, exacerbation of asthma and heart failure, and premature death.

Safety and Security

- The nature of wildland firefighting has shifted in recent years. Conditions related to changing weather and fuel have prevented the direct attack of fires by ground personnel and have contributed to larger wildfires that are more difficult to extinguish.
- Increasingly, difficult wildfire conditions may result in increased responder injuries and fatalities as well as impacts on their mental health.

Transportation

- Wildfire-damaged areas may affect transportation capabilities.

2.7.2 Equity Considerations

Approximately 40% of the populations living in coastal counties fall into an elevated risk category. This includes children, the elderly, households where English is not the primary language, and those living in poverty.

Traffic delays from wildfires are projected to disproportionately affect populations that are low income, of minority status, and/or have no high school diploma. People who are disabled, the elderly, and others with DAFN are at particular risk from extreme wildfire conditions, as they are often not as able to effectively evacuate.

2.7.3 Climate Change

Climate change is already causing an increase in the scale and total burn area of wildfires across the United States. The frequency of large wildfires is influenced by a combination of natural and human factors, such as temperature, soil moisture, relative humidity, wind speed, and vegetation (fuel density). Widespread increases in surface air vapor pressure deficit (VPD) levels, which are a measure of the atmosphere's thirst, are a primary driver of growing wildfire activity. Climate change has elevated surface temperatures, resulting in higher VPD levels and a doubling of cumulative forest fire burn areas.

Historic forest management practices have also led to higher fuel densities in most U.S. forests. This increased fuel load and warming temperatures are making larger wildfires in the western United States more frequent. The wildfire season has also lengthened in many areas due to such factors as warmer spring temperatures, longer summer dry seasons, and drier soils and vegetation. In California, wildfire exclusion practices have played a sizable role in the accumulation of wildland vegetation, which has helped to fuel its recent wildfires.

The relationship between climate change and wildfires is complex. Wildfire activity and the environmental conditions caused by climate change together create a feedback loop in which the burning of organic matter releases greenhouse gases into the atmosphere that then further contribute to climate change and compound wildfire risk.

3 ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

3.1 ORGANIZATION

Local, state, tribal, and federal organizations all have legal and financial responsibilities for wildfire protection that are addressed in Cal. Pub. Res. Code § 4291.5 and Cal. Health & Safety Code § 13108.5, as follows:

- **Federal Responsibility Areas (FRAs).** FRAs are fire-prone wildland areas that are owned or managed by a federal agency (e.g., U.S. Forest Service, National Park Service, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Department of Defense). These land areas may be interspersed with private land ownership or leases; developed private property is usually the responsibility of the relevant local government agency.
- **State Responsibility Areas (SRAs).** SRAs are lands in California where the California Department of Forestry and Fire Protection (CAL FIRE) has legal and financial responsibility for wildfire protection. SRAs are classified into types of land based on different elements (e.g., cover, beneficial use of water from watersheds, probable damage from erosion, and fire risks and hazards).
- **Local Responsibility Areas (LRAs).** LRAs include land that does not meet the criteria for SRA or FRA (including municipalities, cultivated agriculture lands, unincorporated nonflammable areas, etc.). LRA fire protection is typically provided by municipal or county fire agencies, fire protection districts, or CAL FIRE under contract with local governments. LRAs may still include areas of flammable vegetation and wildland urban interfaces (WUI).

3.2 ROLES AND RESPONSIBILITIES

This section denotes the roles of lead, coordination, and support departments, agencies, and organizations for wildfire incidents. All participants have an expectation to participate in preparedness activities including, but not limited to, becoming familiar with this Appendix, participating in related training and exercise opportunities, and developing tactical plans as necessary.

3.2.1 Federal Responsibility Area Agencies

Type: Government (Federal)	Role: Lead
Responsibilities	
Serve in incident or unified command for wildfire in FRAs (excluding pockets of private/developed land).	
Primary financial and rule-making authority over FRAs.	
Provide firefighting response on federal land jurisdictions.	

Provide incident information timely and routinely to the EOC.
Request resources, as needed, from the EOC.
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.

3.2.2 State Responsibility Area Agency (CalFire)

Type: Government (State)	Role: Lead
Responsibilities	
Serve in incident or unified command for wildfire in SRAs (excluding pockets or private/developed land or structures) and/or for LRAs contracted with local government.	
Administer fire hazard classifications and building standard regulations for SRAs.	
Provide incident information routinely and in a timely manner to the EOC.	
Request resources, as needed, from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.3 Local Responsibility Area Agencies (Local Fire Agencies)

Type: Government (Municipal/County / Special District)	Role: Lead
Responsibilities	
Serve in incident or unified command for wildfire response in LRAs.	
Provide incident information routinely and in a timely manner to the EOC.	
Request resources, as needed, from the EOC.	
Utilize situation reports (SitReps) provided by the EOC and other verified sources of information from the field to make tactical decisions to protect public health and safety and meet incident objectives.	

3.2.4 Solano Office of Emergency Services

Type: Government (County)	Role: Coordinate
Responsibilities	
Activate an information coordination conference call or meeting that will include essential stakeholders. The purpose is to determine increased situational awareness of the threat, the gravity of the threat, and what next steps may need to be taken, including beginning public information and alert, media releases, activation of the EOC, etc.	

Communicate with Cal OES; keep them apprised of local situations, and request additional resources as needed.
Activate public alert and warning if necessary.
Coordinate the activation of the Joint Information Center (JIC) as needed.
Activate the EOC, in coordination with the County Administrator / EOC Director, to the appropriate emergency level. The EOC, in turn, will: • Collect, analyze, and share information. • Support resource needs and requests, including allocation and tracking. • Develop Emergency Action Plans to support operational functions and predict current and future needs. • Provide coordination and facilitate policy direction.
Provide recommendation on the need for an emergency proclamation.

4 HAZARD-SPECIFIC TRAINING

The following courses are suggested for those involved in a wildfire response. This list is not exhaustive. Contact Solano OES for more information about course registration.

4.1 FEMA INDEPENDENT STUDY

Wildfire-related courses available through FEMA Independent Study are:

- IS-320 Wildfire Mitigation Basics for Mitigation Staff
- IS-1027 Fire Management Assistance Grant (FMAG)

4.2 FEMA RESIDENTIAL/NON-RESIDENTIAL/INDIRECT

Wildfire-related courses available through FEMA Residential/Non-Residential/ Indirect offerings are:

- National Fire Academy Residential/Non-Residential Courses
- F/N/O597 Introduction to Wildland Urban Interface Evacuation Planning and Procedures
- F/N/O614 Wildland Urban Interface – Fire Adapted Communities

4.3 ADDITIONAL TRAINING

Additional training opportunities can be found through other organizations as listed below:

- COMET - MetEd training on Tactical Fire Weather Forecasting
- COMET - MetEd training on Navigating the National Weather Service Fire Weather Program
- COMET - MetEd training on Extreme Wildland Fire Behavior

- National Wildfire Coordinating Group course offerings
- Additional tactical training offered through state and tribal organizations
- Any additional training mandated by state or federal regulations.

To support the integration of DAFN communities in incident response, training should incorporate DAFN planning considerations and representation.

5 HAZARD-SPECIFIC AUTHORITIES AND REFERENCES

5.1 AUTHORITIES

The following hazard-specific authorities regulate activities outlined in this plan:

Federal

- Department of the Interior Order No. 3372 Reducing wildfire risks on Department of Interior Land through active management
- Department of the Interior Order No. 3374 Implementation of the John D. Dingell, Jr. Conservation, Management, and Recreation Act

State

- Cal. Pub. Res. Code § 4291.5 and Cal. Health & Safety Code § 13108.5.
- Cal. Health & Safety Code §13070-13073
- California Cooperative Wildland Fire Management and Stafford Act Response Agreement (CFMA)
- California Fire Assistance Agreement (CFAA)

5.2 REFERENCES

The following hazard-specific references were used in the creation of this plan:

Federal

- FEMA. (2016). *Emergency Support Function #4 Firefighting Annex.* Available at https://www.fema.gov/sites/default/files/2020-07/fema_ESF_4_Firefighting.pdf

State

- Cal OES. (2021). *California Emergency Support Function 4 Fire and Rescue.* Available at https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/04-CA-ESF-Fire-and-Rescue-Annex.pdf

Local

- Solano County. (2023). *Solano County Community Wildfire Protection Plan.* Available at https://solano-county-cwpp-swcagis.hub.arcgis.com/