

# 6.0 APPENDIX

## [6.0 Appendix \(See full list spreadsheet here\)](#)

| 6.1 Full List of Findings and Recommendations |                                   |                                      |   |  |
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| Reference Section                             | Relevant Department               | Actionable Areas                     | Finding   | Recommendations  |
| 2.0<br>Analysis of Background                 | • State of HI                     | Policy, Organizational               | <b>1. Lack of state policy-making and investment addressing Cohesive Strategy components.</b>   | <p>1. Pursue integrated solutions using a multidisciplinary team to address the entire system of factors that influence wildfire risk and outcomes, including land use and subdivision planning, agriculture, forestry and environmental protection, emergency response, economists and tax experts, and policy-makers. Use the existing and established plans and studies as starting points for discussion and action.</p> <p>2. Learn from states that already have existing advanced wildfire-fighting policies and procedures in place that are more mature in their work on wildfire prevention, preparedness, and response.</p>   |
| 2.0<br>Analysis of Background                 | • State of HI                     | Policy, Organizational               | <b>2. Statewide wildfire prevention is led by the non-profit Hawaii Wildfire Management Organization (HWMO) without state funding.</b>  | 1. Establish dedicated and sustained funding for HWMO to support the coordination and implementation of wildfire prevention and preparedness efforts, especially for communities and land stewards.  |
| 2.0<br>Analysis of Background                 | • State of HI                     | Policy                               | <b>3. Lack of standardized and consistent wildfire data collection and report submissions to federal organizations.</b>   | <p>1. Standardize wildfire data collection process for all counties and require Incident Status Summary, Form 209 completion for wildfires meeting reporting criteria.</p> <p>2. Leverage the impending release of the National Emergency Response Information System (NERIS) to institutionalize fire reporting while ample resources are available and focused on onboarding and supporting fire agencies in this new federal program.</p>   |
| 2.0<br>Analysis of Background                 | • MFD<br>• MPD                    | Policy, Organizational               | <b>4. The MFD and MPD did not initiate an AAR for the 2018 Lahaina Fire. MEMA did not finalize an AAR for the same incident.</b>  | 1. MEMA, the MFD, and the MPD should create policies that include incident parameters requiring an AAR to ensure learnings are documented and changes required for improvement are implemented.  |
| 3.2<br>Weather                                | • MFD<br>• MPD<br>• NWS<br>• MEMA | Policy, Organizational, Preparedness | <b>5. Actionable extreme weather forecasts were provided to fire chiefs and emergency managers prior to the August 2023 fires. However, adjusting staffing for extreme weather events and their resultant risk of extreme fire behavior was not standard.</b> | <p>1. Assign a point of contact within the MFD who is tracking weather conditions, and is disseminating that information to the rest of the department and across partner agencies.</p> <p>2. Establish standard operating procedures for Red Flag and severe fire weather warning conditions, to include: preparing and pre-positioning supplies, equipment, vehicles, and personnel in high-risk areas; ensuring clear and open lines of communication within and among agencies to optimize for rapid and coordinated deployment of resources; and communicating with the public to aid residents in translating the forecasted conditions and risks into evacuation readiness. The California Fire Weather Annual Operating Plan is a good place to start developing a Hawai'i plan.</p> |
| 3.2<br>Weather                                | • State of HI<br>• NWS            | Research, Policy, Preparedness       | <b>6. There is little perceptible difference between Hawai'i Red Flag criteria and a typical summer day, which may have contributed to the emergency manager's response to the forecast.</b>  | 1. Engage federal partners to assist in refining Red Flag criteria to be commensurate with appropriate fire danger that is actionable by policymakers, emergency managers and responders, and the public.  |
| 3.2<br>Weather                                | • NWS<br>• HI-EMA                 | Policy, Organizational, Preparedness | <b>7. NWS-Honolulu fire weather forecast briefings to fire and emergency managers should occur on a more frequent basis.</b>  | 1. Engage policymakers, emergency managers and responders, and the public with more frequent fire weather forecast briefings. This will elevate understanding of the weather, while informing the community of the risk.   |

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| Reference Section      | Relevant Department  | Actionable Areas                        | Finding   | Recommendations  |
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| 3.2<br>Weather         | <ul style="list-style-type: none"> <li>State of HI</li> <li>NWS</li> </ul> | Equipment, Organizational, Preparedness | <p><b>8. A lack of RAWs in West Maui, and other high wildfire risk areas, limits the capability to determine where Red Flag conditions may locally exist. The lack of resolution of fire weather data and monitoring yields uncertainty at the local level due to fire weather forecasts and Red Flag Warnings being based on data collected at the Honolulu airport, which is on O’ahu (not Maui). It does not represent the conditions observed in the diverse and numerous microclimates across all high fire risk areas across the state, including Lahaina, and therefore, serves as a point of reference (or inference, at best) for other regions.</b></p> | <p>1. Install and fund the maintenance for a strategic set of RAWs that can provide information with resolution across the microclimates of high fire risk locations in the state.</p>   |
| 3.3<br>Vegetative Fuel | <ul style="list-style-type: none"> <li>State of HI</li> </ul>              | Policy, Organizational, Preparedness    | <p><b>9. A lack of vegetation management programs, including policy, regulation development and enforcement, and funding support to address vegetation management needs across the variety of landowner types contributed to a prevalence of unmanaged vegetation on the wildland and urban areas impacted by the August 8, 2023, fire.</b></p>   | <p>1. Develop comprehensive vegetation management programs that address the many types of land ownership and risk-reduction needs, to include thinning vegetation, removing invasive species, and creating strategic fuel breaks:</p> <ul style="list-style-type: none"> <li>- On public lands, funding for vegetation management must be commensurate with the personnel, equipment, and maintenance costs needed to strategically and consistently reduce risk.</li> <li>- On private lands, a combination of tax incentives and penalties for active land management, as well as a robust and proactive defensible space code inspection and enforcement programs are needed.</li> <li>- Such programs must be funded and staffed at a level appropriate to adequately ensure risk-reduction measures are implemented and effectively mitigate the potential for fire ignition and rapid spread through unmanaged lands.</li> </ul> <p>2. Establish specific governmental authorities, responsibilities, and goals for the management of vegetative fuels. (Currently, authority to address vegetation hazards is covered by a vague responsibility by the mayor and fire chief to address any number of hazards).</p> <p>3. Establish a system of penalties to address owners of agricultural land who are not participating in active agriculture or vegetation management.</p> <p>4. Develop programs that support coordination and implementation of an “All Hands, All Lands” approach, where vegetation management strategies and projects reduce risk across land ownerships, according to topography and anticipated fire behavior, rather than in fragmented or siloed parcels.</p> <p>5. Implement and expand use of targeted grazing for non-native forage grass removal and fuels reduction at landscape scale.</p> |

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| 3.3 Vegetative Fuel               | • State of HI       | Policy, Organizational, Preparedness             | <b>10. Fire risk and protective measures are not generally considered or integrated into land use planning, ordinances, or permitting processes to ensure adequate defensible space or consistent management of vegetative fuels in and around communities.</b> | <ol style="list-style-type: none"> <li>1. Require integrated land use planning through zoning regulation that requires vegetation management in high-risk areas.</li> <li>2. Educate homeowners on how to create defensible space around their properties, and require them to maintain these spaces.</li> <li>3. Incorporate community-scale, maintained green spaces that are multi-use and could act as fuel breaks and public safe refuge areas.</li> </ol>   |
| 3.3 Vegetative Fuel               | • State of HI       | Policy, Organizational, Preparedness             | <b>11. The existing landowner and land steward risk-reduction programs, which include best practices for vegetative fuels management, have limited capacity and have not been invested in by the government at a level that meets the current need.</b>         | <ol style="list-style-type: none"> <li>1. Provide land steward and community education regarding vegetation management best practices. Invest in, and grow, the existing programs of Firewise USA(TM) and educational programs for land stewards offered by existing groups, such as those already led (but underfunded) by the HWMO, University of Hawai'i, and their established partners.</li> </ol>   |
| 3.3 Vegetative Fuel               | • State of HI       | Policy, Organizational, Preparedness, Research   | <b>12. There is no adequate system for monitoring fuel loads, fuel moisture, and other relevant characteristics.</b>  | <ol style="list-style-type: none"> <li>1. Improve monitoring of fuels and utilize drones, satellite imagery, and ground-based monitoring systems to detect and assess vegetative fuel loads, fuel moisture, and high fire risk conditions.</li> <li>2. Establish an information dissemination system to fire and emergency managers to communicate high-risk locations and periods.</li> </ol>  |
| 3.3 Vegetative Fuel               | • State of HI       | Policy, Organizational, Preparedness, Research   | <b>13. There is a need for additional public and private investment in long-term ecosystem restoration and sustainable land management practices that promote healthy ecosystems, maintain active agriculture, reduce fire risk, and control erosion.</b>       | <ol style="list-style-type: none"> <li>1. This investment can be accomplished as key components of integrated land use planning, financial incentive and assistance programs, and land steward education (all described above).</li> <li>2. Invest in watershed partnerships, conservation groups, and other existing ecosystem conservation and agricultural initiatives.</li> <li>3. Invest in and bolster plant material supply chain for bulk seed production to support adequate fuel conversion and post-fire mitigation. For example, these programs could include common native seed collection, plant propagation, and outplanting.</li> </ol>   |
| 3.4.1 Planning, Zoning, and Codes | • County of Maui    | Policy, Prevention, Organizational, Preparedness | <b>14. At the time of the fire, zoning in some areas of Lahaina was not commensurate with the modern built environment, environmental risks, and population growth.</b>   | <ol style="list-style-type: none"> <li>1. Review and adjust zoning laws to better reflect the actual occupancy levels in Lahaina.</li> <li>2. Implement stricter enforcement to ensure compliance with occupancy limits.</li> <li>3. Enforce building codes and zoning regulations that require sufficient road width and access points in new developments to ensure better planning for future developments.</li> <li>4. Increase the availability of off-street parking solutions to reduce the reliance on narrow streets for vehicle parking.</li> <li>5. Emergency responders should have pre-determined plans, as well as uniquely adapted equipment (if available), tactics, and strategies for specific areas with narrow streets, outlining alternative access points, water supply strategies, and evacuation procedures.</li> </ol> |

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| 3.4.1<br>Planning, Zoning, and Codes | <ul style="list-style-type: none"> <li>County of Maui</li> </ul>                            | Policy, Prevention, Organizational                | <b>15. At the time of the fire, the County of Maui was enforcing the 2006 edition of the International Residential Code and International Building Code.</b>  | 1. Review and ensure adoption process meets requirements of state statute (HRS 107-28).  |
| 3.4.2<br>Road Networks               | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>                          | Preparedness, Training, Equipment, Operational    | <b>16. Emergency responders did not have ready capability to unlock emergency gates at various locations, including schools, to facilitate evacuations. They were often forced to rely on a third-party response for such access.</b> | 1. The MPD and MFD should develop an assessment of its ability to access local utilities (Hawaiian Electric), flood control, waterworks, farms, resorts and public facilities (ex. private and public schools), flood control roads and gates, agricultural roads and gates, harbor areas, etc.) for emergencies. Create a system of universal lock security access that is available to all emergency responders and landowners.  |
| 3.4.2<br>Road Networks               | <ul style="list-style-type: none"> <li>MPD</li> <li>County of Maui</li> </ul>               | Preparedness, Policy, Preparedness, Operational   | <b>17. Severe congestion due to parked cars along neighborhood streets hindered evacuation and response efforts.</b>  | 1. The MPD and county authorities should assess the parking needs and challenges within neighborhoods. This may include evaluating factors, such as population density, housing types, availability of off-street parking, street width, proximity to commercial areas or public transportation, and existing parking issues.  |
| 3.4.2<br>Road Networks               | <ul style="list-style-type: none"> <li>MPD</li> <li>County of Maui</li> <li>MEMA</li> </ul> | Preparedness, Policy, Organizational, Operational | <b>18. Limited written traffic plans or guidelines for emergencies and escalating incidents.</b>  | <p>1. Develop a pre-incident plan for the MPD to manage traffic during a wildfire that involves coordinating efforts to ensure public safety, facilitate evacuation if necessary, and maintain traffic flow in affected areas. Update MPD G.O. 405.1 Traffic Section and G.O. 405.7 Traffic Direction and Control to include instruction on wildfire evacuation.</p> <p>2. Implement and enforce strict no-parking zones on critical streets and encourage the use of off-street parking solutions to reduce the number of vehicles parked on narrow streets.</p> <p>3. Where possible, redesign traffic flow in congested areas, including implementing one-way street systems, to optimize vehicle movement.</p> <p>4. Residents in areas with narrow streets should be educated on fire safety procedures, importance of clear buffer zones/ defensible spaces, and evacuation plans to ensure a more coordinated response.</p> |
| 3.4.2<br>Road Networks               | <ul style="list-style-type: none"> <li>County of Maui</li> <li>MPD</li> <li>MFD</li> </ul>  | Preparedness, Operational                         | <b>19. Roadways and evacuation routes were not adequately maintained prior to August 8, 2023, to sustain effective evacuation efforts during the fire event.</b>  | <p>1. Identify, name, map, and provide signage on dirt roads that serve as alternate egress/evacuation routes so residents and emergency responders refer to them by the same name.</p> <p>2. Inspect and maintain dirt roads annually. Modernize, standardize, and maintain barriers on dirt roads to help ensure they can be used during emergencies.</p> <p>3. Where feasible, widen roads to accommodate more parking, traffic, and provide room for emergency vehicles.</p>   |
| 3.4.3<br>Water                       | <ul style="list-style-type: none"> <li>State of HI</li> <li>Maui Water</li> </ul>           | Operational                                       | <b>20. The County of Maui Department of Water Supply was seemingly in compliance with the Water System Design Standards for the State of Hawai'i in August 2023.</b>  | 1. Given the increasing threat of wildfires and wildfire-initiated urban conflagrations, it may be necessary for the State of Hawai'i to revisit its design standards and guidelines for storage and distribution systems that could be used for firefighting purposes.  |

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| 3.4.3 Water       | • Maui Water        | Operational, Equipment           | <b>21. No pumps are used outside of the water production facilities to provide pressure in the system. Both systems had uninterrupted electrical power during the August 2023 fires and produced water at capacity for the duration of the fire.</b>  | N/A  |
| 3.4.3 Water       | • Maui Water        | Operational, Equipment           | <b>22. The amount of drinking water in storage tanks at the beginning of the August 2023 fires seemingly met standard design requirements as required by the Water System Design Standards for the State of Hawai'i.</b>  | N/A  |
| 3.4.3 Water       | • Maui Water        | Operational, Equipment           | <b>23. As per the Phase One report (pages 237-239), the water supply monitoring system failed at 15:30 (3:30 p.m.) on August 8, 2023, and no storage tank data was recorded for the duration of the fire event. Once this data connection was lost, the County of Maui Department of Water Supply did not know how much stored water was available for firefighting during the fire.</b>    | <b>1. Develop, install, and maintain a resilient drinking water tank level monitoring system for the Lahaina and Māhinahina storage and distribution systems that can be monitored from the County of Maui EOC and other locations.</b>  |
| 3.4.3 Water       | • Maui Water        | Operational                      | <b>24. As homes and other structures were damaged and destroyed by fire, household plumbing (e.g., plastic and other piping) inside of the buildings failed, allowing unrestricted flow of water from one (1) or more locations in each home or structure, resulting in water freely flowing from more structures and diminishing the overall water pressure and flow in the fire area.</b> | N/A  |
| 3.4.3 Water       | • Maui Water        | Operational, Training, Equipment | <b>25. As per the Phase One report (page 239), County of Maui Department of Water Supply employees were unable to enter the fire area to assist firefighters due to multiple factors, including traffic congestion and the danger presented by the fire. Firefighters did not have the time, training, or tools to shut off water.</b>  | <b>1. Develop a plan to coordinate with the County of Maui Department of Water Supply to address water system needs at the incident command post (ICP).</b>  |
| 3.4.3 Water       | • Maui Water        | Operational                      | <b>26. Due to the hydraulics of the drinking water storage and distribution system, and given the excessive demand caused by the flow from damaged/destroyed structures, water was not provided with sufficient volume and sufficient pressure (i.e., the system could not meet the required demand) for use in firefighting for the entire August 2023 fire event.</b>                     | <b>1. Perform a hydraulic analysis of both the Lahaina and Māhinahina storage and distribution systems. Use the results of this analysis to design larger and/or multiple interconnected pipes between the two (2) drinking water storage and distribution systems. Consider the use of pumps, as appropriate, to supplement pressure and volume. Determine pressure and volume limits for a major fire event that stakeholders understand and can operate to.</b> |

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| 3.4.3<br>Water        | <ul style="list-style-type: none"> <li>Maui Water</li> </ul>   | Operational                                       | <b>27. Water quality and cost concerns make it impractical to size a drinking water treatment, storage, and distribution system to accommodate the firefighting demands for a urban conflagration event similar to the one that occurred in August 2023.</b> | <ol style="list-style-type: none"> <li>Provide alternate means of firefighting water supply for extreme events. This may include portable pumps to draw water from public and private pools, ponds, and other bodies of water (including sea water), large diameter hose equipped apparatus, sites, or connections for marine vessels to draw water from the Pacific Ocean, and other means.</li> </ol>   |
| 3.4.4<br>Electrical   | <ul style="list-style-type: none"> <li>Hawaiian Electric</li> </ul>  | Organizational, Operational                       | <b>28. Hawaiian Electric (in partnership with the MFD and MPD) did not have an adequate staffing plan to prepare for the wildfire conditions of August 8, 2023.</b>  | <ol style="list-style-type: none"> <li>Hawaiian Electric should work closely with the MFD and MPD to develop a staffing plan in preparation for high fire danger days. The plan should include implementing spotters and an artificial intelligence-enabled camera network, which can assess vulnerable areas of the infrastructure so failure points can be addressed quickly; operating a dedicated phone line to the MFD and MPD to communicate power and repair status; and assigning a representative to the ICP.</li> </ol>   |
| 3.4.4<br>Electrical   | <ul style="list-style-type: none"> <li>Hawaiian Electric</li> <li>MFD</li> <li>State of HI</li> </ul>            | Prevention, Policy                                | <b>29. A lack of electrical utility vegetation abatement regulations and enforcement may have contributed to vegetation at the base of utility poles and near transmission lines, creating a receptive fuel source for arcing electrical wires.</b>          | <ol style="list-style-type: none"> <li>Hawaiian Electric should continue to work closely with the PUC to execute the Climate Adaptation Transmission and Resilience Program and develop a long-term investment plan to protect infrastructure from high wind events and wildfire. The plan should include immediate vegetation management and enforcement requirements, a phased approach for undergrounding transmission lines in vulnerable areas, strategic replacement of bare overhead wires with covered conductors, and a Public Safety Power Shut-off program.</li> </ol>   |
| 3.4.4<br>Electrical   | <ul style="list-style-type: none"> <li>Hawaiian Electric</li> <li>County of Maui</li> <li>State of HI</li> </ul> | Prevention, Policy                                | <b>30. Hawaiian Electric did not have a Public Safety Power Shut-Off program in place at the time of the fire.</b>   | <ol style="list-style-type: none"> <li>Establish a Public Safety Power Shut-Off and communication protocol in collaboration with the community. Shutting off power to vulnerable areas of the grid reduces the chance of ignition due to electrical infrastructure failure.</li> </ol>  |
| 3.4.4<br>Electrical   | <ul style="list-style-type: none"> <li>Hawaiian Electric</li> <li>Maui Water</li> </ul>                          | Preparedness, Policy, Organizational, Operational | <b>31. The lack of execution of a Hawaiian Electric pre-event organizational plan led to having to staff more field positions during the event to address problems with electrical and water infrastructure.</b>   | <ol style="list-style-type: none"> <li>Hawaiian Electric to prepare a staffing plan that is coordinated with the pre-event incident action plan (IAP).</li> </ol>   |
| 3.5<br>Communications | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>   | Preparedness, Organizational, Operational         | <b>32. Central Dispatch (“Central”) was limited by the availability of equipment and personnel.</b>  | <ol style="list-style-type: none"> <li>Expand Central's surge capacity by increasing the terminals/necessary equipment for call taking and dispatching operations and consider training personnel (including members from the MFD or MPD) to serve as “call takers” capable of transferring emergency 911 calls, and managing the non-emergency/administrative calls.</li> <li>Complete a comprehensive study of Central Dispatch to assess staffing, workloads, and technology to identify any gaps or additional resource needs to help ensure resilient communication during major emergencies and disasters.</li> </ol> |
| 3.5<br>Communications | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>County of Maui</li> <li>MEMA</li> </ul>         | Organizational, Policy, Operational               | <b>33. Central Dispatch, and many other responding personnel, were deeply affected by this incident.</b>   | <ol style="list-style-type: none"> <li>Continue providing opportunities for individuals and crews to meet for a “report back/debrief.” Ensure members know warning signs for PTS, PTSD, depression, suicide, and related impacts on personnel mental health. Provide access to Employee Assistance Programs (EAP) and peer support networks—encourage use when warning signs are present.</li> </ol>  |

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| 3.5 Communications      | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>   | Organizational, Operational                       | <b>34. Dispatchers were responsible for monitoring multiple large fires and other associated events. Most of the dispatchers were experienced, but all dispatchers were overwhelmed and some expressed lack of adequate knowledge, ready access to needed information, and concern about the safety of the instructions they were providing callers. There were persistent communication challenges between Central, the MPD's Department Operations Center (DOC), and the EOC.</b> | 1. Staff a MFD fire officer and a MPD officer at the rank of lieutenant (or higher) in Central Dispatch to aid with operational monitoring, EOC/DOC coordinations, incident tracking, communications, and assistance with command decisions when the EOC is activated.  |
| 3.5 Communications      | <ul style="list-style-type: none"> <li>MFD</li> <li>County of Maui</li> <li>State of HI Organizational, Operational</li> </ul> | Equipment, Organizational, Operational            | <b>35. Private equipment operators primarily communicate with response entities and field personnel using personal cell phones.</b>   | 1. Create a formal communication plan for private contractors to use during emergency situations that includes resilient hardware and appropriate training.   |
| 3.5 Communications      | <ul style="list-style-type: none"> <li>County of Maui</li> <li>State of HI</li> </ul>  | Preparedness, Organizational, Operational         | <b>36. Many residents did NOT receive a text notification from the county regarding the high winds and high fire danger.</b>  | 1. Assess the resiliency of communication systems and establish redundant public alert program and warning processes, including best practice messaging guidance.   |
| 3.5 Communications      | <ul style="list-style-type: none"> <li>Hawaiian Electric</li> <li>County of Maui</li> <li>State of HI</li> </ul>               | Preparedness, Organizational, Operational         | <b>37. Only one (1) siren from the All-Hazard Outdoor Warning Siren System was operable within the burn perimeter of the Lahaina area on August 8, 2023.</b>  | 1. Implement a statewide sustainable program for the All-Hazard Outdoor Warning System, which includes functioning hardware resilient against mass communications failure, regular maintenance, public education, additional resources and staffing.  |
| 3.5 Communications      | <ul style="list-style-type: none"> <li>County of Maui</li> <li>State of HI</li> <li>MEMA</li> </ul>                            | Preparedness, Operational                         | <b>38. The All-Hazard Outdoor Warning Siren System had not been utilized for warning of WUI fires prior to August 8, 2023. As of the publication date of this report, MEMA has implemented a process for activating sirens for wildfires.</b>   | N/A   |
| 3.5 Communications      | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>MEMA</li> <li>County of Maui</li> </ul>                       | Preparedness, Policy, Organizational, Operational | <b>39. Even when people were told to evacuate and conditions seemed obvious that evacuation was necessary, many refused because there did not appear to be official notification that danger was imminent.</b>  | 1. Engage the community to provide additional public education regarding the importance of what to do in an emergency and to heed all evacuation instructions.  |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> </ul>  | Policy, Organizational, Operational               | <b>40. Although there were opportunities for the MFD to provide staff support for the battalion chief(s) managing the incident, a formal command team was not established. The ICs were overwhelmed with the demands of the event and possessed limited situational awareness during a rapidly expanding emergency, which included a mayday; these factors contributed to challenges with tactical decision-making throughout the Lahaina PM fire.</b>                              | <p>1. Review and modify the dispatch algorithm to reflect the resource availability.</p> <p>2. Provide the resources and training necessary to establish and maintain effective support for the initial incident commander (IC).</p> <p>3. Within MFD Hazard Zone Command SOG, include requirements for all chief officer engagement within the incident command structure for large complex incidents.</p> |

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| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>Hawaiian Electric</li> <li>Maui Water</li> </ul> | Policy, Organizational, Operational  | <b>41. The MFD and MPD never connected to establish a unified command.</b>   | 1. The MFD, MPD, and other assisting and cooperating agencies should include guidance within their respective incident management SOGs on when unified command should be considered and how it could be established.   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>  | Organizational, Operational          | <b>42. Available public safety resources were inefficiently utilized. This resulted in the failure to establish and scale an effective incident management organization during the first 24 hours of the incident.</b>   | 1. Provide sufficient staffing to establish and maintain an effective incident management organization, while maintaining the capacity to conduct unit-level tactical actions. Once established, develop a robust incident action plan (IAP). An IAP should outline objectives, strategies, and tactics for managing the incident, including evacuation procedures, traffic management, and resource allocation. Communicating the IAP to all responding personnel and stakeholders ensures a shared understanding of roles, responsibilities, and priorities. |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>  | Policy, Organizational, Operational  | <b>43. There was no comprehensive plan for the MPD's wildfire response.</b>  | 1. Develop a comprehensive plan in coordination with the MFD for MPD's response to a wildfire that prioritizes public safety, efficient evacuations, and effective traffic management.   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MPD</li> </ul>   | Policy, Organizational, Operational  | <b>44. Limited sharing of critical information occurred between field operations units, the MPD Department Operations Center (DOC), and the EOC.</b>   | <p>1. Review and update policies and develop new processes for information flow between MPD Command Personnel on site, command staff, dispatch, and the EOC.</p> <p>2. All commanders, captains, and above should receive training on activation of the DOC and a Department Operations Center quick reference guide should be developed for commanders to be utilized for any crisis.</p>   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MPD</li> </ul>   | Policy                               | <b>45. The MPD Natural and Man-Made Disaster Plan, G.O. 411.4, does not include wildfire incidents.</b>  | 1. Update policy to include plans specifically related to wildfires.   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>MEMA</li> </ul>                                  | Preparedness, Policy                 | <b>46. There was limited pre-event incident action planning for anticipated events or incidents by the MFD, MPD, and MEMA.</b>   | 1. The MFD, MPD, and MEMA should update the current policies and procedures regarding pre-event planning (including preparing pre-event incident action plans), staffing, and equipment.   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>MEMA</li> </ul>                                  | Policy, Preparedness, Organizational | <b>47. There were no written procedures or guidelines for Continuity of Operations (COOP).</b>   | 1. The County of Maui, MPD, and MFD to prepare Continuity of Operations Plans (COOP) that outline procedures to ensure essential functions can continue during and after various types of emergencies or disruptions.  |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MEMA</li> <li>HI-EMA</li> </ul>  | Preparedness, Organizational         | <b>48. Communication was limited between MEMA and HI-EMA EOC.</b>  | 1. Additional resources are needed to have a persistent durable communication link prior to, and during, a major emergency or disaster event.  |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MEMA</li> </ul>  | Preparedness, Operational            | <b>49. Given the known conditions forecasted for the County of Maui on August 8, 2023, agency representatives self-reported to the EOC throughout the day, but full activation of the EOC did not occur until 16:30.</b> | 1. Under similar conditions, and given appropriate resources, consider full activation earlier to aid collaboration between all relevant emergency support functions.  |



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| 3.6 Incident Management | • MEMA              | Preparedness, Policy, Organizational, Operational | <b>50. MEMA does not have a sufficient budget/personnel allocation to effectively and sustainably perform the wide range of preparedness, response, and recovery missions assigned to it.</b>   | 1. EOCs fulfill essential functions during emergencies and must be properly staffed and operationalized with (A) qualified overhead personnel to perform emergency management-related functions and (B) designated representatives from all cooperating/involved agencies/organizations to provide subject matter expertise, resource coordination/tracking, and immediate information relays to ICs in the field.   |
| 3.6 Incident Management | • MEMA              | Organizational, Training, Operational             | <b>51. During the EOC activation on August 8, 2023, there was a lack of clarity regarding the roles and responsibilities among MEMA personnel.</b>  | 1. Provide clearly defined roles and responsibilities for each staff member during EOC activations. Staff members should be trained and fully competent to fulfill their designated role. MEMA should also ensure staff training for secondary roles and responsibilities for when personnel are expected to shift to a different position (e.g., when vacancies occur).   |
| 3.6 Incident Management | • MEMA              | Training, Operational                             | <b>52. Some MEMA personnel were unfamiliar with the software platform used for documentation and incident tracking during EOC activations.</b>  | 1. Ensure all personnel are fully trained and proficient with use of the designated EOC software program (WebEOC or any other software program designated by the MEMA Administrator).<br><br>2. Ensure all MEMA EOC personnel understand the NIMS-ICS requirements for documentation during EOC activations.   |
| 3.6 Incident Management | • MEMA              | Operational                                       | <b>53. The EOC was overcrowded and personnel had to find alternative work locations.</b>  | 1. MEMA should examine the needs for the physical location and expand the EOC.   |
| 3.6 Incident Management | • MFD<br>• MPD      | Policy, Operational, Equipment                    | <b>54. Both the MPD and MFD were unable to maintain personnel accountability for officers, firefighters, and crews during the Lahaina PM fire.</b>  | 1. MPD roll calls should be initiated by dispatch and/or command staff as needed to maintain accountability. A policy should be established with defined roll call procedures.<br><br>2. Ensure sufficient resources are available to support MFD Cs and division/group/unit-level supervisors with all functions of command/management, including personnel accountability.<br><br>3. Adoption and consistent use of a common and resilient AVL platform on all MPD, MFD, and cooperators' (e.g., DOFAW, ARFF, and EMS) vehicles would assist dispatchers and command officers with personnel accountability and incident management. |
| 3.6 Incident Management | • MFD               | Operational, Training                             | <b>55. The MFD sponsors a Type 3 IMT that was not used August 8-9, 2023.</b>  | 1. Consider pre-deploying the Type 3 IMT when severe weather and/or fire danger conditions are forecasted.<br><br>2. Enhance training and expand participation to include personnel from multiple disciplines, reinforcing the value of an all-hazards IMT and fostering collaboration across agencies. Consider securing training and experiences for Ocean Safety personnel to be able to perform in specific IMT overhead roles.  |
| 3.6 Incident Management | • Hawaiian Electric | Policy, Operational                               | <b>56. Hawaiian Electric should be at the incident command post (ICP), or tied in closely with the incident commander if an ICP is not established, to inform command of safety issues, other coordination opportunities, and act as a liaison to their organization.</b> | 1. Create and follow a protocol to embed Hawaiian Electric representatives in the incident command post (when established) as liaisons.  |

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| Reference Section       | Relevant Department   | Actionable Areas                             | Finding   | Recommendations   |
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| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>  | Operational, Equipment                       | <b>57. The MPD and MFD did not deploy or use the mobile command vehicle as per MPD G.O. 304.11. Deployment and use of the vehicle in Lahaina before the PM fire may have initiated the unified command organization that was absent throughout the PM fire.</b> | <ol style="list-style-type: none"> <li>Follow G.O. 304.11 to ensure the mobile incident command vehicle is used for appropriately sized incidents, such as the Lahaina PM Fire.</li> <li>Deploy the mobile command vehicle at planned events to exercise the deployment process and equipment.</li> </ol>   |
| 3.6 Incident Management | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>  | Policy, Operational                          | <b>58. There were no established unit identifiers for off-duty MPD officers or supplemental MFD units.</b>  | <ol style="list-style-type: none"> <li>Create a call sign procedure for identification of off-duty MPD officers who self-deploy and MFD personnel assigned to supplemental MFD units. The existing MPD G.O. 301.5 policy should be revised regarding the establishment of call signs for incoming off-duty officers and self-deploying officers. The MFD should establish a policy to standardize identification of staffed supplemental resources.</li> </ol>  |
| 3.7 Fire Suppression    | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>MEMA</li> <li>Maui Water</li> <li>DLNR-DOFAW</li> <li>Hawaiian Electric</li> </ul> | Preparedness, Policy, Organizational         | <b>59. The MFD did not have an organizational pre-plan for an anticipated high wind or extreme fire weather event.</b>  | <ol style="list-style-type: none"> <li>Ensure effective sensemaking of forecasts and real-time conditions through training and pre-planning.</li> <li>Implement organization-wide start-of-shift briefings to discuss extreme fire weather conditions.</li> <li>Ensure the ICS can scale up quickly, integrating additional support, including personnel normally serving in administrative roles or other functions (e.g., fire prevention, ocean safety, and training), as needed. Provide training and protocols for pre-deployment.</li> <li>Communicate anticipated environmental conditions, risks, and performance expectations across organizations. This includes the MPD, MEMA, County of Maui Department of Water Supply, DLNR-DOFAW, and Hawaiian Electric, who reacted to environmental conditions only after problems arose.</li> <li>Develop a system for ongoing situational awareness that includes continuous monitoring of weather forecasts, fuel moisture levels, and fire behavior through real-time data and predictive models.</li> </ol> |
| 3.7 Fire Suppression    | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>DLNR-DOFAW</li> <li>Hawaiian Electric</li> <li>Maui Water</li> </ul>               | Preparedness, Policy, Operational, Equipment | <b>60. With the impending forecast of severe fire weather, there was limited pre-deployment of additional public safety resources prior to the first fire event.</b>  | <ol style="list-style-type: none"> <li>With the potential impact of hurricanes like Dora and Red Flag conditions, the MFD, MPD, DLNR-DOFAW, and their cooperators should consider deploying additional resources across Maui Nui.</li> <li>Identify fire apparatus, incident management, and law enforcement resources for upstaffing and pre-deployment when severe conditions are forecasted.</li> <li>Ensure sufficient fire apparatus, response vehicles, portable equipment, PPE, and radios are available to resource the pre-deployment of additional response units and overhead assets. Whenever possible, standardize the equipment loadout on similar apparatus/vehicles to facilitate use by callback personnel.</li> <li>Consider providing dedicated personnel and resources for staffing management and callback, on a daily basis and before/during major incidents, to make command-level resources readily available for strategic/tactical ICS roles.</li> </ol>   |

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| Reference Section      | Relevant Department   | Actionable Areas  | Finding   | Recommendations   |
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| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>County of Maui</li> <li>State of HI</li> <li>HI-EMA</li> <li>MEMA</li> </ul> | Preparedness, Prevention, Policy, Organizational, Training, Operational | <b>61. There appears to be a statewide culture of dismissing and/or under-recognizing wildfire risk. The underfunding and under-addressing of preparedness, planning, and mitigation efforts significantly impacts all parts of the system and fire outcomes. This cannot be overstated.</b>                                | 1. Establish a culture of respect for extreme conditions and the need for operational adjustment.   |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>DLNR-DO-FAW</li> </ul>   | Preparedness, Policy, Organizational, Operational                       | <b>62. DLNR-DOFAW resources, specialized wildfire equipment, and trained personnel were underutilized due to restrictive fire response zone guidelines.</b>   | <p>1. Incorporate land ownership maps into incident reporting and tracking to ensure that state and federal agencies with response duties and wildland firefighting capacity are notified and activated.</p> <p>2. Review and revise master mutual aid agreements for all fire suppression resources on Maui Nui, including, but not limited to, the MFD, ARFF, DLNR-DOFAW, and National Park Services to ensure optimal readiness and response for multi-hazard disasters.</p> |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>County of Maui</li> </ul>  | Preparedness, Policy, Operational                                       | <b>63. Densely populated and narrow roadways hindered both MFD and MPD movement during suppression (as well as evacuation and rescue) efforts. Apparatus positioning was not always optimal, due in large part to an overall lack of situational awareness about the location, severity, and trajectory of the fire(s).</b> | <p>1. Responding MFD units should have pre-determined plans and operating practices for specific areas with narrow streets, outlining alternative access points, water supply strategies, evacuation procedures, and addressing the needs of vulnerable members of the community.</p> <p>2. Place hardcopy maps, mapbooks, and pre-incident plans in all response vehicles to provide redundancy if cellular network communication is unavailable.</p>                          |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>Hawaiian Electric</li> </ul>   | Policy, Operational   | <b>64. The uncertainty around the status of power in the area created numerous impacts on MPD and MFD response to the incident.</b>   | 1. As previously mentioned, Hawaiian Electric should have a representative at the ICP (when established).   |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>DLNR-DO-FAW</li> </ul>  | Policy, Operational, Equipment, Training                                | <b>65. Private heavy equipment contractors lacked appropriate training, PPE, equipment, and communications.</b>   | 1. Strengthen the coordination with private contractors and address limitations in training, equipment (including standardizing equipment to ensure compatibility with all fire suppression resources), PPE, and communication.   |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> <li>DLNR-DO-FAW</li> </ul>  | Policy, Operational, Training   | <b>66. A portion of the mopup area was difficult to access and posed safety threats.</b>  | <p>1. Include DLNR-DOFAW resources on initial response to vegetation and WUI fires.</p> <p>2. Ensure all personnel have the training to identify and establish safety zones and escape routes, and have protocols in place for communicating this to crews.</p> <p>3. Communicate the wildfire risk to all department members to set and/or reinforce expectations related to fire mopup procedures.</p>  |
| 3.7<br>Fire Supression | <ul style="list-style-type: none"> <li>MFD</li> </ul>   | Policy, Operational, Training   | <b>67. MFD firefighters performed mopup as proven successful under typical weather conditions. However, under the severe weather conditions on August 8, 2023, this level of mopup appears to have been insufficient.</b>   | <p>1. Revise policies, procedures, and trainings (E.O. 302.14) that address wildland firefighting (specifically mopup operations) to be in alignment with NWCG guidelines.</p> <p>2. Implement schedules to manage responder fatigue, ensuring adequate rest periods and meals.</p>   |

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| Reference Section       | Relevant Department     | Actionable Areas              | Finding  | Recommendations  |
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| 3.7<br>Fire Suppression | • MFD                   | Policy, Operational, Training | <b>68. MFD wildland firefighting training, equipment, and staffing should be commensurate with the level of wildfire risk faced by firefighters.</b>     | <ol style="list-style-type: none"> <li>1. Conduct a comprehensive audit and gap analysis of existing MFD operating procedures/practices against relevant Occupational Safety and Health Administration (OSHA) regulations, National Fire Protection Association (NFPA) standards, fire service best practices, and NWCG standards/guidelines to help ensure compliance with industry regulations and best practices. By conducting an audit and implementing recommended improvements, the MFD can create a safer working environment for its personnel and enhance the effectiveness of its firefighting and rescue efforts for all incident types.</li> <li>2. Review the implementation of the MFD's 36-hour rule for alignment with operational needs during disasters and major emergencies.</li> <li>3. Consider developing a WUI firefighting playbook to address the increasingly severe wildfire threat across Maui Nui. Look to departments that respond to WUI incidents for expertise and protocols, such as California.</li> <li>4. Deliver training on, and provide a copy in all response vehicles, the NWCG Incident Response Pocket Guide (IRPG), PMS 461.</li> <li>5. Provide additional wildfire and WUI firefighting training and experiences (such as shadowing incident management personnel in other areas) for MFD personnel.</li> <li>6. Continue providing medical monitoring and behavioral health support for responders and support personnel.</li> </ol> |
| 3.7<br>Fire Suppression | • MFD                   | Policy, Training, Operational | <b>69. Many initial attack resources were burned over due to fighting fire from a downwind position.</b>   | <ol style="list-style-type: none"> <li>1. Train firefighters about the impact of wind on fire progression and fire suppression techniques as per evidence based information and best practices.</li> </ol>   |
| 3.7<br>Fire Suppression | • MFD<br>• DLNR -DO-FAW | Policy, Training, Operational | <b>70. Standard wildland firefighting operating procedures for the DLNR-DOFAW and MFD are not in alignment.</b>  | <ol style="list-style-type: none"> <li>1. The DLNR-DOFAW and MFD should collaborate to update and integrate standard operating guidelines and training for wildland firefighting.</li> </ol>   |
| 3.8<br>Evacuation       | • MFD<br>• MPD          | Policy, Training, Operational | <b>71. Unified coordination of evacuation procedures among the MPD, MFD, and other agencies may have facilitated more efficient egress of residents.</b> | <ol style="list-style-type: none"> <li>1. Create, review, and implement an interagency comprehensive evacuation plan based on risk and resources. Integrated emergency response plans involving local, state, and federal agencies, as well as non-governmental organizations, should be developed, with regular joint training exercises to ensure smooth coordination during actual emergencies.</li> <li>2. The MPD should regularly train for wildfire evacuations, familiarizing themselves with evacuation procedures and protocols. This training enhances response capabilities and ensures a swift and organized evacuation process when wildfires threaten communities.</li> </ol>   |

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| 3.8 Evacuation    | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> <li>County of Maui</li> </ul> | Preparedness, Policy, Operational | <b>72. During the evacuations, there were lapses in coordination and communication that could have reduced efficiency.</b>                                       | <p>1. Pre-plan evacuation routes. Effective evacuations during a wildfire, such as the Lahaina PM fire, require planning, coordination, and adherence to best practices. A key aspect is comprehensive pre-event planning, which involves identifying evacuation routes (including unnamed dirt roads), establishing communication protocols, and conducting drills to ensure readiness.</p> <p>2. Sufficient personnel are needed to manage traffic, provide assistance to evacuees, and maintain public safety. Adequate staffing levels enable timely and orderly evacuations, reducing the risk of congestion and confusion.</p> <p>3. Create and implement comprehensive traffic management plans that account for limited access and egress routes, including pre-planned alternate routes and strategies to manage congestion.</p> <p>4. Ensuring gates blocking potential evacuation routes are equipped with standardized locks and that emergency responders have the necessary keys or access codes is also vital.</p> <p>5. Develop comprehensive support systems for residents who need to evacuate—especially those with access and functional needs—including temporary housing, transportation assistance, and access to essential services. By addressing these key areas, the Maui community can improve its preparedness for future wildfires and other emergencies, ensuring better protection of lives and property.</p> <p>6. Volunteer training programs, such as those for Community Emergency Response Teams (CERT), should be expanded to assist with evacuation efforts and provide support during emergencies. Additionally, specific evacuation plans for vulnerable populations, including the elderly, disabled, and those without transportation, should be created, with community support networks established to assist these individuals during evacuations. Engage community organizations and CERT teams to provide additional support in evacuation efforts.</p> |
| 3.8 Evacuation    | <ul style="list-style-type: none"> <li>MPD</li> </ul>                                      | Policy, Operational, Equipment    | <b>73. While some Body-Worn Cameras (BWC) were activated (in keeping with the current policy), several files provided by the County of Maui were unreadable.</b> | <p>1. Update the MPD's G.O. 304.12 policy to have BWCs activated upon dispatch and include a quality-control program to ensure all equipment is functioning properly and producing usable audio visual assets.</p> <p>2. The MPD should follow G.O. 304.12.</p>   |
| 3.8 Evacuation    | <ul style="list-style-type: none"> <li>MPD</li> </ul>                                      | Equipment, Training               | <b>74. MPD officers experienced difficulty hearing radio traffic due to the wind and noise from the fire.</b>  | <p>1. Issuing radio earpieces to all officers will enhance communication, allowing them to stay informed and coordinate effectively during incidents. Officers should receive training on the proper use and maintenance of these earpieces to maximize their benefits.</p>   |

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| Reference Section     | Relevant Department  | Actionable Areas                             | Finding  | Recommendations   |
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| 3.8 Evacuation        | <ul style="list-style-type: none"> <li>County of Maui</li> <li>MEMA</li> </ul>                     | Preparedness, Policy, Equipment, Operational | <b>75. The alert systems in place did not adequately inform residents of inherent dangers.</b>   | <ol style="list-style-type: none"> <li>Developing and implementing multiple alert systems, including sirens, radio broadcasts, and door-to-door notifications, can ensure that evacuation orders reach all residents, especially when cell service and electrical power are lost.</li> <li>Expand community engagement and preparedness efforts with public awareness campaigns that emphasize the importance of evacuation and the risks of staying behind during wildfires, encouraging residents to have a personal evacuation plan that includes considerations for pets and family members with special needs.</li> <li>Educate the public about evacuation procedures and safe routes, and the importance of establishing family evacuation plans and having prepared “go-bags.” Regular drills and informational sessions can reinforce this knowledge, while localized communication networks, such as neighborhood watch groups or community liaisons, can assist in disseminating information.</li> </ol> |
| 3.8 Evacuation        | <ul style="list-style-type: none"> <li>MFD</li> <li>MPD</li> </ul>                                 | Preparedness, Policy, Equipment, Operational | <b>76. MPD officers encountered barriers to roads that could have been (and eventually were) used as alternate egress routes and lacked equipment to navigate these barriers.</b>        | <ol style="list-style-type: none"> <li>Perform annual status checks of emergency gates throughout the community.</li> <li>Equip police vehicles with disaster response kits, including appropriate PPE, to be able to facilitate evacuations and remove barriers from potential escape exits, such as chain link fences, gates, and boulders.</li> <li>The MFD to establish new policy/General Order for the provision of fire- and disaster-related emergency tools for patrol, such as bolt cutters, tow straps, etc.</li> </ol>  |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>MFD</li> <li>County of Maui</li> <li>State of HI</li> </ul> | Prevention, Preparedness, Policy             | <b>77. Numerous stakeholder organizations (state, county, community, and HWMO) have collaborated to evaluate wildfire risk per West Maui CWPP.</b>                                       | <ol style="list-style-type: none"> <li>Hold a statutory organization accountable for executing the preparedness plans commensurate with the risk identified through these efforts.</li> <li>Adopt and enforce contemporary codes and standards for building construction in wildfire prone areas.</li> </ol>  |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>MFD</li> <li>County of Maui</li> <li>State of HI</li> </ul> | Prevention, Preparedness, Policy             | <b>78. Codes and standards exist for addressing fire hazards of exterior vegetation (16.04D Subsection 10.13.10), but they require enhancement based on risk and current guidelines.</b> | <ol style="list-style-type: none"> <li>Update, implement, and enforce fuel management and defensible space around structures.</li> </ol>  |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>MFD</li> <li>County of Maui</li> <li>State of HI</li> </ul> | Research, Prevention, Policy                 | <b>79. Some vegetation adjacent to structures survived where the structure was not destroyed.</b>  | <ol style="list-style-type: none"> <li>Additional research is necessary to understand the potential for lush, well-watered, and well-maintained vegetation to provide benefits (e.g., radiation shielding) that is not outweighed by the hazard.</li> </ol>   |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>MFD</li> <li>County of Maui</li> <li>State of HI</li> </ul> | Prevention, Policy                           | <b>80. Ember penetration through building envelopes, including roofs, vents, and windows, is a common pathway for building ignition.</b>   | <ol style="list-style-type: none"> <li>Buildings should be constructed and maintained to resist ember intrusion. This will include construction features (vents, roofs, etc.).</li> <li>Adopt stronger WUI codes (e.g., ICC International Wildland-Urban Interface Code and NFPA 1140: Standard on Wildland Fire Protection) or WUI Structure/Parcel/Community Hazard Mitigation Methodology guidance.</li> </ol>   |

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| 4.0 Built Environment | <ul style="list-style-type: none"> <li>• MFD</li> <li>• County of Maui</li> <li>• State of HI</li> </ul> | Prevention, Policy              | <b>81. Window and doors were left open prior to evacuation.</b>  | 1. Residents and citizens should be educated on the importance of closing building openings as an important component of preparation for, and departure from, a home during an evacuation—part of a “Ready, Set, Go: Close Before You Go” campaign. |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>• MFD</li> <li>• County of Maui</li> <li>• State of HI</li> </ul> | Prevention, Policy              | <b>82. Age of construction is not a primary indicator of structure survival (correlation not causation).</b>   | 1. Ensure properties and areas around structures are well-maintained, despite the structures’ age (i.e., newer structures are not exempt).  |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>• MFD</li> <li>• County of Maui</li> <li>• State of HI</li> </ul> | Prevention, Policy, Operational | <b>83. Defensive actions appear to have lessened fire impact in the built environment.</b>   | 1. Identify fire suppression strategies and tactics commensurate with resources and infrastructure capabilities and availability. Preplan based on these limitations and local conditions.  |
| 4.0 Built Environment | <ul style="list-style-type: none"> <li>• MFD</li> <li>• County of Maui</li> <li>• State of HI</li> </ul> | Prevention, Policy              | <b>84. Fuel breaks, such as Kahoma Stream, Kaua’ula Stream, Keawe Street Apartments at the Villages of Leiali’i construction site, and grass athletic fields by the Boys and Girls Club/Lahaina Recreation Center, appear to have impacted fire progression.</b> | 1. Investigate zoning changes to incorporate fuel breaks in areas within the community to slow fire progression and to act as safe refuge areas for evacuating residents.   |