Appendix D. Outline – Major Themes, Findings and Recommendations

Theme 1: Leadership roles did not align with expertise or decision making authority and lacked necessary delegations.

Finding 1.1: The National Park Service system for qualifying Agency Administrators does not meet the demands of the current fire environment.

Recommendations:

- **1.1.1.** Improve and standardize Government-wide Agency Administrator qualification requirements to align with incident complexity and operational risk.
- **1.1.2.** Expand and formalize the use of qualified Agency Administrators across agencies to ensure adequate coverage and expertise.
- **1.1.3.** Replace ad hoc qualification waivers with a structured, risk-based process that is documented and reviewable.
- **1.1.4.** Separate Superintendent duties from Agency Administrator duties during complex incidents.

Finding 1.2: Organizational structure delayed or prevented effective decision making.

Recommendations:

- **1.2.1.** Adhere to NIMS and ICS communication structures for all incidents.
- **1.2.2.** Realign fire management reporting structures to ensure direct access to park or unit leadership during incidents.
- **1.2.3.** Reinforce Agency Administrator communication and oversight expectations through policy and guidance.

Finding 1.3: The Agency Administrator did not provide timely and complete delegations of authority or adequately communicate fire management objectives.

Recommendations:

- **1.3.1.** Issue accurate, timely delegations of authority aligned with incident strategy and complexity.
- **1.3.2.** Ensure Agency Administrators conduct timely briefings and in-briefings with Incident Commanders.
- **1.3.3.** Standardize delegation practices and governance across agencies and incidents.
- **1.3.4.** Require Agency Administrators to clearly document leader's intent and pre-identify and document values at risk to support delegation and decision making.
- **1.3.5.** Ensure Agency Administrators are on-call/available at all times.
- **1.3.6.** Clarify and delegate Agency Administrator authorities necessary for timely operational decisions.
- **1.3.7.** Evaluate the North Rim management structure given the geographic isolation and operational responsibility.

Finding 1.4: Continued authorization of the confine and contain strategy did not reflect awareness of changing conditions or escalating risk.

Recommendations:

- **1.4.1.** Require formal concurrence and peer review when approving a strategy other than full suppression.
- **1.4.2.** Ensure WFDSS decisions clearly document rationale and reflect current conditions.

1.4.3. Require WFDSS planning areas to encompass all potential values at risk.

1.4.4. Require regular, time-certain revalidation of confine and contain strategies.

1.4.5. Standardize WFDSS documentation to identify assumptions and triggers for strategy change.

Finding 1.5: Overemphasis on conservation values and policies associated with proposed wilderness areas may have increased decision timelines and limited tools available for fire operations.

Recommendations:

1.5.1. Clarify and reinforce Agency Administrator authority to balance conservation values with operational decision making.

1.5.2. Clearly distinguish designated wilderness from proposed wilderness in fire operations and pre-identify and map suppression tool authorization zones.

Finding 1.6: No clear protocol existed for conveying mandatory national direction on fire suppression strategy, and no mechanism ensured compliance.

Recommendations:

1.6.1. Establish a standardized protocol for communicating national wildland fire posture and direction.

1.6.2. Institutionalize a national preseason Agency Administrator workshop.

1.6.3. Communicate an annual national wildland fire posture and leader's intent.

1.6.4. Require documentation of concurrence with, or deviation from, national fire posture.

Finding 1.7: Interagency coordination did not align with established agreements and excluded available expertise.

Recommendations:

1.7.1. Understand and follow existing agreements.

1.7.2. Explore the development of consolidated Fire Management Plans and ensure preseason leadership alignment.

1.7.3. Apply best practices for development of WFDSS planning areas on cross-boundary incidents.

1.7.4. Dissolve the North Zone Operating Plan.

Theme 2: Critical information and predictive tools were not readily used to make informed decisions.

Finding 2.1: Fire weather forecasts and growth indicators were not translated into strategic trigger points for changing fire conditions.

Recommendations:

2.1.1. Establish a daily 'forecast-to-strategy' decision tree.

2.1.2. Require MAPs/triggers to be explicitly measurable, time-bound and carried forward into WFDSS, the IAP, and the transition briefing package.

2.1.3. When models indicate low probability, but high consequence outcomes, additional documentation is required.

Finding 2.2: Initial WFDSS decisions did not clearly include or explain assumptions, risks, or contingency triggers.

Recommendations:

- **2.2.1.** Require a side-by-side comparison of at least two viable strategic courses of action for high-consequence fires.
- **2.2.2.** Require an 'Assumptions & Validation' table in WFDSS.

Finding 2.3: Frequent changes in Incident Commanders and a lack of thorough in-briefing from the Agency Administrator may have contributed to information and intelligence gaps.

Recommendations:

- **2.3.1.** Adopt a standardized transition process or checklist for Type 3 to CIMT transitions.
- **2.3.2.** Require a formal in/out-brief with documented sign-off when command transitions occur under high operational tempo.
- **2.3.3.** Create a single 'common operating picture' repository location for incident critical products to reduce loss of information across transitions (maps, IR, decision logs, WFDSS, IAPs).

Finding 2.4: From July 4-11, minimal assessment was completed to determine the reliability of containment features based on current environmental or operational conditions.

Recommendations:

- **2.4.1.** Implement a 'containment feature assessment' product for high-consequence fires.
- **2.4.2.** When a strategy relies on a planned prescribed-fire unit boundary as a functional control feature, require explicit justification and verification steps.
- **2.4.3.** Add a failure-point review, to evaluate 'how this line could fail?'.

Theme 3: Execution of operational, planning and logistical decisions did not match the tempo and changing conditions of the Dragon Bravo Fire.

Finding 3.1: As fire behavior increased and response conditions deteriorated, there was a lack of realization of the elevated operational complexity.

Recommendations:

- **3.1.1.** Implement a mandatory, structured transition checklist (such as the NWCG Briefing Checklist) for every transition to ensure data integrity.
- **3.1.2.** Transitions should ideally occur during morning briefings to maximize situational awareness for all incoming personnel.
- **3.1.3.** Utilize periodic complexity assessments.
- **3.1.4.** Pre-plan to protect identified values at risk.
- **3.1.5.** Create a logistical and operational feedback loop that compares ordering lead times versus fire growth windows.

Finding 3.2: Fire Information and intelligence did not keep up with how fast the incident was changing during the most critical operational periods and was not readily shared to create a clear operational picture.

Recommendations:

- **3.2.1.** Require external review of fire information and resource needs for incidents to ensure current and predicted conditions can keep pace with operational demands.

3.2.2. Order preemptive intelligence staffing to support localized prioritization and interpretation of fire behavior and growth.

3.2.3. Require dispatch and incident leadership to log key intelligence products and key findings in authoritative records.

3.2.4. Establish standard operating procedures to make information and intelligence from MMA flights readily available in a central repository.

Finding 3.3: The interagency dispatch center lacked the capability and infrastructure needed to support emergency response needs and complex incidents.

Recommendations:

3.3.1. Evaluate infrastructure needs and dispatch center locations to ensure their ability to support complex incidents.

3.3.2. Assess the establishment of a national public safety radio network that is only for wildland fire and meets industry standards.

3.3.3. Evaluate the need for 24/7 and emergency IT support that can provide immediate and specialized assistance when there are network issues.

3.3.4. Ensure agency policy is consistently followed to record and store dispatch recordings and related documentation for frequencies utilized at interagency dispatch centers.

3.3.5. Address radio congestion and interoperability.

Theme 4: Evacuation and life safety plans were executed but lacked proper planning, comprehensive implementation, and coordination.

Finding 4.1: Identified safety zones, evacuation routes and shelter-in-place locations did not meet the anticipated safety needs of responders or employees.

Recommendations:

4.1.1. Update and validate all emergency management plans.

4.1.2. All wildland fire safety briefings should include discussion and clarification on all anticipated safety zones, evacuation routes, as well as unique hazards.

Finding 4.2: The North Rim visitor evacuation was carried out successfully and without reported adverse outcomes, but this was not due to preemptive decision making by GRCA leadership or the fire management team.

Recommendations:

4.2.1. Define internal evacuation thresholds independent of external triggers.

4.2.2. Ensure emergency management decision points are trained through scenario-based drills.

4.2.3. Explore technology solutions to assist in NPS and concession employee tracking and communication.

Finding 4.3: Concessionaire evacuation plans were not tiered to the GRCA Evacuation Plan.

Recommendations:

4.3.1. Ensure evacuation and communication protocols are jointly exercised.

4.3.2. Standardize and integrate contractor evacuation checklists.

Theme 5: Communications challenges may have eroded public trust.

Finding 5.1: Insufficient communications guidance contributed to inconsistent messaging on the fire strategy.

Recommendations:

- **5.1.1.** Issue a clear seasonal national or regional fire posture with an accompanying communications plan.
- **5.1.2.** Require preseason coordination briefings.
- **5.1.3.** Align seasonal communications guidance with technical wildland fire terminology and decision tools.
- **5.1.4.** Engage elected officials early and consistently.

Finding 5.2: Absence of Grand Canyon Park leadership at initial public meetings may have negatively impacted public perceptions.

Recommendations:

- **5.2.1.** Separate Superintendent and Agency Administrator roles for high-visibility incidents.
- **5.2.2.** Require the superintendent to attend public meetings.
- **5.2.3.** Align public engagement responsibilities with incident complexity.
- **5.2.4.** Document public engagement responsibilities in delegations and incident plans.

Finding 5.3: A rapidly evolving fire, minimal public affairs staffing, and release of unofficial information contributed to communications challenges.

Recommendations:

- **5.3.1.** Establish 24-hour public affairs coverage to rapidly share information on evolving incidents.
- **5.3.2.** Coordinate communications cadence with operational milestones.
- **5.3.3.** Expedite official information release during high-profile incidents.
- **5.3.4.** Set clear expectations and require preseason and incident briefings on information release expectations.
- **5.3.5.** Include explicit contractual language governing information release.

Theme 6: Responders experienced significant safety and exposure hazard risks in the complex WUI environment.

Finding 6.1: Responders experienced significant exposures to occupational health hazards from fire impacted infrastructure across multiple shifts without exposure mitigations or controls.

Recommendations:

- **6.1.1.** Evaluate current policy, guidance, and direction governing wildland firefighter engagement in WUI environments.
- **6.1.2.** Train to and enforce policy boundaries for wildland personnel in WUI fire environments.
- **6.1.3.** Assess the need for respiratory protection appropriate to WUI hazards.
- **6.1.4.** Expand safety officer and Agency Administrator training to include occupational health hazards.
- **6.1.5.** Require early assignment of qualified safety officers for incidents that may include the WUI.

Finding 6.2: Hazardous materials, such as chlorine, were not properly considered or built into operational planning, briefings, or trigger points.

Recommendations:

- **6.2.1.** Incorporate fixed-facility HAZMAT inventories into operational maps, preplans, and briefings.
- **6.2.2.** Define and document trigger points for HAZMAT protective actions.
- **6.2.3.** Establish rapid ordering pathways for HAZMAT support.

Finding 6.3: Hazardous materials exposure concerns were expressed but were not properly assessed and may not have been properly mitigated.

Recommendations:

- **6.3.1.** Establish and implement standard operating procedures to assess post-fire exposure hazards in the WUI environment to be conducted by qualified occupational health professionals.
- **6.3.2.** Define authority to pause or modify work pending hazard assessment.
- **6.3.3.** Provide clear risk communication and exposure documentation to personnel.

Finding 6.4: Information regarding occupational hazards from the WUI environment were not shared with potentially exposed fire personnel or incident management teams.

Recommendations:

- **6.4.1.** Develop standardized guidance and templates for documenting and communicating hazardous exposures.
- **6.4.2.** Ensure employee awareness of exposure reporting systems and processes.
- **6.4.3.** Require IAP safety messaging to consistently reflect WUI occupational hazards.

Theme 7: Preparedness, readiness, and coordination across programs were misaligned.

Finding 7.1: Wildland fire, structure fire, and other GRCA programs did not function as one integrated team to adequately respond to a WUI incident.

Recommendations:

- **7.1.1.** Ensure the responsibility of structure triage and protection is clearly defined.
- **7.1.2.** Develop an integrated WUI protection plan that explicitly connects wildland and structure fire programs, facilities, and utilities into a single operational concept.
- **7.1.3.** Plan and run regular exercises where all relevant programs participate to prepare and respond to a WUI incident.

Finding 7.2: WUI defensible space preparedness and readiness was not run as one coordinated program.

Recommendations:

- **7.2.1.** Require a formalized defensible space program that complies with IWUICs and applicable policy.
- **7.2.2.** Clarify and reinforce Agency Administrator authority to balance conservation values with operational decision making.

Finding 7.3: The structural fire protection program did not match the complexity of the Dragon Bravo Fire.

Recommendations:

7.3.1 Evaluate the NPS Structural Fire Program's capability to provide WUI response support and resources.

7.3.2 Establish adequate availability of structure fire personal protective equipment.

7.3.3 Assess the current structural fire positions to match structural protection responsibilities and park complexity.

7.3.4 Implement a master inspection/testing/maintenance calendar across park and concession structures.

7.3.5 Evaluate the need for mutual aid agreements in remote areas where capability may be limited.

Finding 7.4: Gaps and deficiencies identified in program reviews remained unresolved.

Recommendations:

7.4.1. Require program reviews to be completed within identified timeframes and have corrective action plans with owners, deadlines, and verification.

7.4.2. U.S. Wildland Fire Service should develop policy that outlines requirements for wildland fire readiness reviews.

Finding 7.5: North Rim water systems supporting fire suppression were not adequately designed or maintained to support suppression efforts during the fire incident.

Recommendations:

7.5.1. Ensure compliance with applicable policies and National Fire Protection Association Standards for water pressure and flow.

7.5.2. Evaluate upgrading sprinkler systems for prioritized historic buildings.