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Item No. 1
Halifax Regional Council
August 6, 2024

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed

SUBMITTED BY: _____
Cathie O’Toole, Chief Administrative Officer

DATE: July 4, 2024

SUBJECT: **May 2023 Wildland-Urban Interface (WUI) Wildfire Post Incident Analysis**

ORIGIN

Staff initiated report reviewing the actions of Halifax Regional Fire & Emergency (HRFE) post the Upper Tantallon Wildfire which commenced May 28th, 2023.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Administrative Order Number 2018-006-OP (*Halifax Regional Fire & Emergency Administrative Order*)

12. (1) Pursuant to section 304 of the Halifax Regional Municipality Charter, the Municipality may provide fire and emergency services including: (c) Fire Prevention & Public Education Fire Services; (d) Firefighting and Fire Related Emergencies; ... (q) Wildland Firefighting

(2) Halifax Regional Fire & Emergency shall endeavor to provide services in the Municipality at the minimum service levels outlined in Table A.

Table A

	Category	Service Type	Minimum Service Level
1.1	Firefighting	Structural	Offensive
1.2		Wildland	Ground Cover Fires

EXECUTIVE SUMMARY

Following the fire, and in alignment with policy, HRFE began an in-depth post incident analysis (PIA) of HRFE response operations to the event. A PIA aims to identify and promote successful emergency response practices, identify, and recommend improvements in training, equipment, or procedures whenever possible, and promote continuous improvement. The assigned PIA task force embarked on a two-phase process to conduct a thorough review with data gathering and analysis, conducted over several months. The observations and recommendations in this resulting report is intended to help

strengthen HRFE's capability and capacity to respond to future Wildland-Urban Interface (WUI) fires. The Findings section of the analysis (Attachment 1) delves into the response operations to identify areas for improvement and highlight strengths to sustain. However, the learnings outlined should not overshadow the human effort that was displayed.

The methodology used by the task force identified 13 themes for areas of learning. Within these themes, findings of 24 best practices, which are strengths to sustain, and 56 opportunities for improvement were identified. The 13 themes discovered and detailed within the report are:

1. Major Event Response
2. Evacuation
3. Accountability
4. Safety
5. Wildland Urban Interface Fire
6. Firefighting
7. Water Supply
8. Mutual Aid
9. Logistics
10. Emergency Fleet Services
11. Telecommunications and Technology
12. Emergency Public Information
13. Fire Investigation

BACKGROUND

On the afternoon of May 28, 2023, within the boundaries of HRM, an outside fire ignited in the community of Upper Tantallon that resulted in substantial property and environmental destruction and significant disruption to lives that will not be soon forgotten. This fire developed into HRM's most extensive WUI fire. The response to this unprecedented situation extended over the next seven days and included an impressive multi-agency operation. Despite extensive efforts to control and extinguish the Upper Tantallon fire, it consumed more than 900 hectares, required the evacuation of 16,400 people, and resulted in the loss of approximately 200 structures, including 151 homes.

Per HRFE Policy P-410, *Post Incident Analysis*, HRFE is required to perform a PIA after structure fires and other significant emergency responses. An HRFE PIA is a review of actions taken to mitigate an emergency to determine if specific changes in training, equipment, or procedures should be recommended to make future responses safer and more effective.

DISCUSSION

Given the significant impact of the wildfire on residents, Council, the municipality, and the many agencies involved in responding to the fire, sharing HRFE's PIA can provide some insight and context into the event. This PIA is focused on HRFE's response, with the primary intention to improve wherever possible HRFE's future responses.

This PIA, in addition to the previously released After Action Report examining the Halifax Regional Municipality's response, along with reports from both the Nova Scotia Department of Natural Resources and Renewables and the Royal Canadian Mounted Police, should provide additional insight to residents and Council regarding the totality of the response.

The observations and recommendations contained within this report are specific to the May 2023 WUI fire in the HRM and are intended for use by HRFE for continuous improvement. This report may offer observations that other agencies, departments, or jurisdictions can find beneficial in their respective operations and planning; however, as the report was developed solely for the use of HRFE, HRM is not responsible or liable to any person or organization external to HRFE or HRM that may use this material for their own purposes.

FINANCIAL IMPLICATIONS

There are no financial implications associated with accepting this report for information.

COMMUNITY ENGAGEMENT

Each career and volunteer member of HRFE was provided with the opportunity to contribute their insights and feedback for the PIA. Interviews and focus groups were held with HRM staff from HRFE, Community Safety – Emergency Management Office, Property Fleet and Environment – Emergency Fleet, and Halifax Regional Police – Integrated Emergency Services. Interviews and/or focus groups were also held with staff from Nova Scotia Department of Natural Resources, Service Nova Scotia, the Royal Canadian Mounted Police, Emergency Health Services (EHS) and Emergency Medical Care Inc (EMCI). Surveys were also sent to many stakeholders HRFE had interacted with during the event, including the volunteer and career fire departments that aided during the event.

ATTACHMENTS

Attachment 1 - HRFE Post Incident Analysis Wildland Urban Interface Fire - May 2023

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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HRFE
Post Incident Analysis
Wildland Urban Interface Fire: May 2023

FINAL REPORT
July 3, 2024

Disclaimer

This report articulates details of the post incident analysis (PIA) of the May 2023 Wildland-Urban Interface (WUI) wildfire that occurred in the Halifax Regional Municipality (HRM) of Nova Scotia (NS). The report analyzed Halifax Regional Fire & Emergency's (HRFE) response and operations. This incident was a wildfire; therefore, the Department of Natural Resources and Renewables (DNRR) is the Authority Having Jurisdiction (AHJ) and the official agency leading the Incident Command; DNRR, Royal Canadian Mounted Police (RCMP), HRM, and other agencies have conducted other incident reviews.

The observations and recommendations contained within this report are specific to the May 2023 WUI wildfire in the HRM and are intended for use by HRFE. This report may offer observations other agencies or jurisdictions can find beneficial in their respective operations and planning; however, the Halifax Regional Municipality, through HRFE disclaims all responsibility or liability to any person or organization external to HRM and HRFE that may use this material in any manner.

The May 2023 WUI wildfire was a significant event that required a multi-agency response. The scale of the event temporally and spatially, compounded by the rapidity of the evolving initial situation, necessitated actions that may not have been thoroughly documented. There may be discrepancies between what occurred and what stakeholders have shared and recalled. The report contains factual and objective findings by correlating and cross-referencing multiple sources of information and data.

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Abbreviations and Definitions

AAR	After Action Report
AVL	Automatic Vehicle Location
BCP	Business Continuity Plan
Blue Card	Fire ground operations command methodology
BLVD	Boulevard
CAD	Computer Aided Dispatch
CAO	Chief Administrative Officer
CP	Command Post
DND	Department of National Defense
DNRR	Department Natural Resources and Renewables
EHS	Emergency Health Services
EM	Emergency Management
NSEMO	Nova Scotia Emergency Management Office
EOC	Emergency Operations Center
EPSO	Emergency Preparedness and Special Operations
FDM	Fire Data Management
FDUL	Food Unit Leader
FFAP	Firefighter and Family Assistance Program
FST	Fire Strategic Team
GPS	Global Positioning System
HRD	Human Remains Detection
HRFE	Halifax Fire and Emergency
HRM	Halifax Regional Municipality
HRP	Halifax Regional Police
HUSAR	Heavy Urban Search and Rescue
IAFF	International Association of Fire Fighters
IAP	Incident Action Plan
IBC	Insurance Bureau of Canada
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IT	Information Technology
IES	Integrated Emergency Services
IMT	Incident Management Team
IT	Information Technology
MCS	Mobile Communications Support
MDT	Mobile Data Terminal
MERP	Major Event Response Plan
NFPA	National Fire Protection Association
NS	Nova Scotia
NTP	Network Time Protocol
NWCG	National Wildfire Coordinating Group
OAG	Office of the Auditor General
OFM	Office of the Fire Marshall
PIA	Post Incident Analysis

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PPE	Personal Protective Equipment
PSFC	Public Safety Field Communications
Rehab	Firefighter Rehabilitation an organized process that provides emergency responders with rest, nourishment, re-hydration, recovery, cooling/warming, and medical attention as required.
RCMP	Royal Canadian Mounted Police
Sit. Reps	Situation Reports
TMR	Trunk Mobile Radio
VFD	Volunteer Fire Department
Wildfire	a large, destructive fire that spreads quickly over woodland or brush
WUI	Wildland Urban Interface

Executive Summary

On the afternoon of May 28, 2023, within the boundaries of HRM, an outside fire ignited in the community of Upper Tantallon resulting in substantial property and environmental destruction and significant disruption to lives that will not be soon forgotten. This fire developed into HRM's most extensive WUI wildfire. The response to this unprecedented situation extended for more than a week and included an impressive multi-agency operation. Despite extensive efforts to control and extinguish the Upper Tantallon wildfire, it consumed more than 900 hectares, required the evacuation of 16,400 people, and resulted in the loss of approximately 200 structures, including 151 homes.

Following the wildfire, and in alignment with policy, HRFE began an in-depth post incident analysis (PIA) of HRFE response operations to the event. The assigned PIA Taskforce embarked on a two-phase process to conduct a thorough review with data gathering and analysis, conducted over several months. The observations and recommendations in this resulting report is intended to help strengthen HRFE's capability and capacity to respond to future WUI wildfires. A PIA aims to identify and promote successful emergency response practices, identify, and recommend improvements in training, equipment, or procedures whenever possible, and promote continuous improvement.

Resoundingly, throughout the PIA process, the Taskforce heard about the hard work and dedication of everyone involved in the response. Under extraordinary circumstances, including dangerous wildfire conditions and extremes of weather from hot and dry to cold and wet, people worked hard to serve, support, and save the community. Many involved in the response were both responders and residents who suffered personal losses at their homes in the same community they were fighting to defend, which underscores the community-based effort of neighbors helping neighbors. Despite this unprecedented event, in terms of scope, size, and duration, everyone worked well together without loss of life or significant injury.

The methodology used by the Taskforce identified 13 themes for areas of learning. Within these themes, findings of 24 best practices, which are strengths to sustain, and 56 opportunities for improvement were identified. The 13 themes discovered and detailed within the report are:

1. Major Event Response
2. Evacuation
3. Accountability
4. Safety
5. Wildland Urban Interface Wildfire
6. Firefighting
7. Water Supply
8. Mutual Aid
9. Logistics
10. Emergency Fleet Services
11. Telecommunications and Technology
12. Emergency Public Information
13. Fire Investigation

Introduction

This report articulates details of the post incident analysis of the May 2023 WUI wildfire that occurred in the HRM of Nova Scotia. This incident was a WUI wildfire, therefore, DNRR was the official agency leading the Incident Command; this report was a focused analysis of HRFE's emergency response operations. DNRR, HRM, and other agencies have conducted other incident reviews. HRFE is a municipal fire and emergency service that provides service across 5,577 square kilometers and serves nearly 500,000 residents. HRFE is comprised of 51 stations supported by approximately 1,100 firefighters which are both career and volunteer. This analysis was completed according to HRFE Policy P-410: Post Incident Analysis as a paper-based analysis. The PIA was conducted by a Taskforce assigned by the Fire Chief. The Taskforce included two Division Chiefs and the Policy and Business Initiatives Coordinator.

By Policy P-410 (Appendix A: HRFE PIA Policy), the PIA aims to identify and promote successful emergency response practices, identify, and recommend improvements in training, equipment, or procedures whenever possible, and promote continuous improvement. The performance of a PIA is a best practice and demonstrates a commitment to an organizational learning approach to improvement. With any event, especially during extreme circumstances, there are always lessons that can be learned from retrospective reviews that can be used to improve future response operations. These lessons can encompass successes of the response that are strengths to sustain and opportunities for improving future response operations.



Photo credit: CBC News (May 28, 2023)

The May 2023 WUI wildfire in HRM was an event of adversity that caused considerable stress and loss for residents and responders. In some individual cases, HRFE firefighters responding to the wildfire were also residents of the impacted area. This report recognizes the personal and professional experiences of those impacted. It reflects their insights about what happened, what they experienced, and what can be learned. The Taskforce sincerely appreciates all stakeholders who provided input into this report and their openness and commitment to continuous improvement.

The structure of this report begins with a narrative overview of the incident, including some details and factors present during the event initiation, response, and subsequent impact. The process implemented by the Taskforce on data gathering is outlined under the Methodology. The report's substance is contained in the Findings section, which discusses the 13 themes discovered during the data analysis. Each theme is explored with the corresponding lessons. A summary of all strengths to be sustained and areas for improvement are listed in the Summary of Findings. Additional and supporting information are contained in the applicable appendices and references as cited throughout the report.

Event Overview



Photo credit: HRM GIS Services

On the afternoon of May 28, 2023, within HRM, an outside fire ignited in the community of Upper Tantallon resulting in substantial property destruction and significant disruption to residents and businesses. This fire developed into HRM's most extensive WUI wildfire. This wildfire was preceded by a seasonal low precipitation rate and lack of snow cover from the previous winter and spring, which predisposed higher than normal dry conditions. According to DNR data from May 28, temperatures in the area from 1300 to 1500 ranged from 26.7 to 30.9 Celsius and were accompanied by a drop in relative humidity from 32% to 13% with wind gusts up to 51 km/hr. This condition is known as crossover in wildfire terminology and is the point at which the relative humidity is less than, or equal to, the ambient air temperature. Crossover condition is an indicator of extreme burning conditions. The wildfire rapidly spread at rates of an average of 33 m/min, up to 44-50 m/min, with sustained wind gusts, fire embers, and heavy thick smoke traveling ahead of the primary wildfire. The fire conditions were extreme, and the first structure was burning in less than 30 minutes. In the first hour, an additional 22 structures were engulfed in flames, and in the first four hours, 128 structures were burning. These conditions resulted in a tactically unstoppable wildfire in these early stages.

The response to this unprecedented situation extended over the next seven days and included an impressive multi-agency operation. Additional significant fire incidents during these seven days included a secondary WUI wildfire on the east side of Hammonds Plains that began on May 30, and a major structure fire in the HRM downtown core on June 1. During the same period of the Upper Tantallon WUI wildfire, another historic Nova Scotia WUI wildfire was burning in Shelburne County, which burned for weeks, destroying more than 23,000 hectares,

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230 structures destroyed, 59 structures damaged, and requiring the evacuation of nearly 7,000 residents. Resources were strategically prioritized and deployed to support all fire incidents. Throughout all these events, there was an immense effort by many to help. The capabilities and capacities of the interagency cooperation demonstrated a valuable resourcefulness that Haligonians, and Nova Scotians in general, should take solace in and be proud of.



Photo credit: HRFE

Despite the valiant effort to control and extinguish the Upper Tantallon wildfire, it consumed more than 900 hectares, required the evacuation of 16,400 people, and resulted in the loss of approximately 200 structures, including 151 homes. Below is a timeline of the event with details on wildfire progression and the response efforts.

Event Timeline

The following timeline was put together using HRFE's dispatch notes, OPS 3 Radio audio, Fire Chief and On Call Chief Officer call logs and Everbridge notes, as well as the daily communication updates provided by DNRR and Communications Nova Scotia.

MAY 28	
15:26:45	E911 call received.
15:28:12	ALARM 1 report of a deck and woods on fire at Juneberry Lane.
15:28:12	Engine 65 arriving at Station 65 from returning from a community event, departs station as Alarm 1 comes in
15:32:15	Engine 65 requested dispatch to confirm DNRR was en route before arrival.
15:32:41	Dispatch provided confirmation DNRR notified and that explosions could be heard.
15:33:45	ALARM 2
15:33:47	Engine 65 requested RCMP notified and EHS requested.
15:35:54	First HRFE fire engine, Engine 65 arrives on scene at Tattingstone, indicated large working fire in trees and homes to dispatch. Multiple homes and exposure risk, confirming second alarm.
15:36:30	Engine 65 arrived on scene. Incident command was established (Captain of E65 is Command).
15:37:56	First hose line charged for E65. Report fire spreading quickly. Rehab and rescues requested, with DC permission.
15:38:00	Upon Command's request, dispatch notes that T65, T10, T56, T11, E55, E58 are on route and that they also paged out T55, T56, T50, Hubbards, Tact 58, E56, E54.
15:40:05	ALARM 3 confirmed by District Chief 3 (en route), indicated that the rink will be the staging area. DC request Dispatch to notify On Call Chief Officer and have them attend Station 3 for developing a move up strategy for the municipality.
15:41:16	Command requested to confirm DNRR helicopter en route, dispatch confirmed they had someone looking into it.
15:41:40	Hubbards Fire Department mutual aid responding.
15:41:10	Command informs dispatch fire has jumped Westwood Blvd.
15:42:56	Fire working with RCMP may have to evacuate part of the subdivision. Dispatch confirms to DC 2 apparatus en route
15:44:10	Everbridge Notification sent to: Director of Emergency Management (Community Safety), Fire Chief, Deputy Fire Chiefs, Assistant Fire Chiefs, Division Chief of Fire Safety, Division Chief of Technology & Innovation
15:45:26	Fire Chief calls Dispatch for Sit Rep while en route to incident
15:48:00	E50 (second unit) arrives on scene.
15:48:22	Fire Chief calls On-Call Chief Officer for Sit Rep
	Fire Chief receives additional information from Dispatch
15:45:38	P.C. Core informs over radio that Macdonald Bridge is backed up

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15:45:52	NS Power requested.
15:45:56	Command runs through smoke to determine situation, informs dispatch fire spread to 662, 642 and 626 Westwood Blvd.
15:46:11	Flat Lake dry hydrant assigned as water fill site.
15:47:37	DNRR Called for helicopter.
15:47:55	Second HRFE apparatus, Engine 50 arrives on scene. Command directs to 662 Westwood Blvd for Fire Control.
15:48:27	Fire Chief phones On-Call Chief Officer
15:49:47	Engine 50 informs dispatch of fire extension to homes on Juneberry Lane and need for more apparatus
15:50:00	Engine 55 (third apparatus) and Tanker 10 (fourth apparatus) arrive on scene.
	Command indicates all incoming tankers to stage at RCMP vehicle blocking Tattingstone.
15:51:11	Tanker 58 (fifth apparatus) arrives. Command assigns Captain Tanker 58 Under Command of 662 Westwood Alpha Sector and Captain T10 Command of Tattingstone Bravo Sector.
15:51:16	On-Call Chief en route to cover for District Chief.
15:54:00	Tanker 50 (sixth apparatus) arrives on scene.
15:55:13	HRFE fire engine on site at Flat Lake fill site and operational.
15:58:00	District Chief 2 (seventh apparatus) arrives on scene.
16:00:00	Platoon Captain Core (eighth apparatus) and Tanker 56 (ninth apparatus) arrive on scene.
16:02:00	Engine 6 (tenth apparatus) arrives on scene.
16:05 – 16:08	Engine 6 informs dispatch Fire is all the way to Wyndham Dr, heavy fire conditions and backing out, confirmed structure fires at the top of Hemlock.
16:07	Emergency Management calls Fire Chief for sit rep.
16:10:01	Multiple homes on Hemlock on fire.
16:12:05	PC Core requested RCMP at 567 Westwood Blvd for evacuation planning via dispatch.
16:16:37	On-Call Chief Officer phones HRM Emergency Management, to issue evacuation notice for Westwood Subdivision and establishment of a comfort center.
16:18:45	EHS on scene.
16:19:00	Fire Chief emails CAO, Mayor and Councilor Lovelace to inform them of 3 Alarm wildfire that is wind driven and involving multiple homes.
16:24	Fire heading towards Oceanstone and Arilia Lane
16:25	Fire Chief emails A/CAO, CAO, Mayor and Councilor Lovelace
16:26:43	DC 2 has dispatch have Deputy of Ops phone for update
16:28:39	RCMP has 200 cars to evacuate, Command directs RCMP to have everyone leave subdivision and limit incoming traffic.
16:30:50	Additional HRFE apparatus on scene.
16:31:21	On-Call Chief Officer phones HRM Emergency Management requested to open HRM EOC.
16:31:52	Dispatch advises mutual aid 7 including DNRR has been patched to Ops channel.

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16:32	NS Power arrived, on High Timber Dr.
16:32:39	Evacuations occurring at Ranchwood Ln and High Timber Dr.
16:33:38	Additional HRFE apparatus on scene.
16:34:00	Fire Chief calls Deputy Chiefs to direct one to assist with dispatch and one to assist with media.
16:41:02	On-Call Chief Officer phones HRM Emergency Management, to issue second evacuation notice for Yankeetown and Stillwater subdivisions.
16:42:36	Hubbards Fire Department mutual aid on scene.
16:42:44	Fire Chief phones CAO while still en route. CAO confirms HRFE to be IC, Fire Chief advises that DNRR is the Authority Having Jurisdiction (AHJ) and CAO requests Unified Command.
16:45:40 – 16:49:34	Six additional HRFE apparatus arrive on scene.
17:13:00	NSEMO Emergency Alert Issued: Evacuation ordered for Westwood Hills subdivision due to ongoing multiple structure and forest fire. All residents in Westwood Hills ordered to evacuate. Comfort Centre opened at Blackpoint Community Centre.
17:17:06	Additional HRFE apparatus arrival on scene.
17:38:27	ALARM 4
17:48:35	On-Call Chief Officer phones HRM Emergency Management Director, provides update.
18:00:01	ALARM 5
18:08:05 – 18:10:11	Fire Chief and On-Call Chief Officer place four calls to each other, cell coverage currently is not reliable.
18:09:00	Update to NSEMO Emergency Alert Issued: Evacuation ordered for Westwood Hills subdivision due to ongoing multiple structure and forest fire. All residents in Westwood Hills ordered to evacuate. Comfort Centre opened at Blackpoint Community Centre. Evacuation ordered for Westwood Hills subdivision due to ongoing multiple structure and forest fire. All residents in Westwood Hills ordered to evacuate. Comfort Centre opened at Blackpoint Community Centre. Fire now spread, and evacuation order is now issued for Yankeetown (Highland Park) subdivision.
18:11:15	Mount Uniacke Fire Department on scene.
18:17:13	On-Call Chief Officer phones HRM Emergency Management Director, notifies of need to extend evacuation.
18:18:00	Fire Chief emails A/CAO, CAO, Chief of Staff, Mayor, and Councillor with update of 5th Alarm, and evacuation of Yankeetown, and update on Command Post and media.
18:24:29 – 18:33:38	Two additional HRFE apparatus arrive on scene.
18:57:10	On-Call Chief Officer phones HRM Emergency Management Director notifies of need to evacuate Pockwock seniors complex.
19:36:01	DNRR indicate air assets will be available shortly.
19:41:00	Update to NSEMO Alert Issued: Evacuation order extended to Haliburton Hills, Glen Arbour, Pockwock Rd, Whitehills subdivision, Lucasville Rd all the way to Sackville Dr. This is in addition to the earlier evacuation orders. Take your pets with

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	you when you evacuate. Please check @hfxgov for updates on opening centres or 311.
19:59:46	Fire Chief phones HRM Municipal Solicitor and Chief Governance Officer to discuss evacuation ordered, state of local emergency, plans for unified command and authority
	Fire Chief phones A/CAO to discuss evacuation ordered, state of local emergency, plans for unified command and authority
20:03:46	Water Bomber plane arrival noted above Westwood.
20:07:26	Fire Chief phones A/CAO to provide further updates
20:19:00	Update to NSEMO Alert
20:30:00	Operations meeting with agency representatives from HRFE, DNRR, RCMP, DND, NSPI.
21:33:38	HRFE drone deployed for situational awareness & night surveillance.
21:58:34	Fire Chief phones HRM Emergency Management Director, provides update
23:55:38	Hansport Fire arrived on scene.
23:56:13	Windsor Fire arrived on scene.
MAY 29	
<ul style="list-style-type: none"> • DNRR assumes official Incident Command at 07:00. • HRFE, DNRR and RCMP hold media availability sessions at Command Post at 9am and 5pm • Fire is estimated to cover 788 hectares and is classified as out of control. • Crews on scene include 32 from the DNRR, 170 from HRFE and other mutual aid fire departments, and 7 from DND Fire. • Ground and air assets include 30 HRFE fire trucks, 2 DNRR helicopters, and a water bomber from Newfoundland and Labrador 	
MAY 30	
Morning	<ul style="list-style-type: none"> • The fire remains out of control. • Crews on scene include 40 DNRR firefighters, and 80 from HRFE and other mutual aid fire departments and DND Fire. • 3 DNRR helicopters are on site. • It was estimated that about 200 homes and structures have been damaged.
Afternoon	<ul style="list-style-type: none"> • A second WUI wildfire is discovered northwest, off Hammonds Plains Road, near Bedford. • Due to a potential ammonia leak associated with this secondary fire, additional evacuations were implemented. • Crews on scene include 46 DNRR firefighters and 100 from HRFE and other mutual aid fire departments and DND Fire. • 3 DNRR helicopters are on site. • Roof fire office building downtown Halifax. • Brush fires Windsor Junction and Fall River. • NSEMO Alert Issued: Evacuation ordered for 1000m surrounding Farmers Dairy Lane.

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	<ul style="list-style-type: none"> NSEMO Alert Issued: “30-minute precautionary notice for residents to possibly evacuate for the following area due to wildland fire. “Viscount run starting at intersection of Spyglass up to and including cloverleaf and Summerwood Lane. Further alert will be sent if we need evacuation ordered. Please ensure you prepare your essentials and pets as required.”
MAY 31	
Upper Tantallon fire	<ul style="list-style-type: none"> Fire remains out of control and is estimated to cover 837 hectares. Crews on scene include 52 Firefighters from DNRR, 6 from Prince Edward Island, 100 from HRFE and other mutual aid fire departments, and 9 from DND Fire. 3 DNRR helicopters are on site.
Hammonds Plains Road fire	<ul style="list-style-type: none"> Fire is about 4 hectares and is 80 percent contained. Firefighters include 10 from DNRR, 11 from HRFE, and 3 from DND Fire. 1 helicopter supporting fire suppression
JUNE 1	
Upper Tantallon fire	<ul style="list-style-type: none"> Fire is 50 percent contained but still out of control, at an estimated 837 hectares. Firefighters on scene include 40 from DNRR, 6 from Prince Edward Island, 117 from HRFE and other mutual aid fire departments, and 9 from DND Fire. Air resources include 3 DNRR helicopters and a water bomber from Newfoundland and Labrador.
Hammonds Plains Road fire	<ul style="list-style-type: none"> Fire is holding at 4 hectares and is 80 percent contained. 10 HRFE firefighters on site.
Other	<ul style="list-style-type: none"> Major structure fire erupts within the HRM city core at the Waegwoltic Club. Brush fires Prospect Road and Fall River. All but 1 of HRFE’s heavy apparatus that were in service, deployed to incidents throughout HRM.
JUNE 2	
Upper Tantallon fire	<ul style="list-style-type: none"> Fire is 50 percent contained but still out of control, at an estimated 950 hectares. Firefighters on the scene include 40 from DNRR, 100 from HFRE and other mutual aid fire departments, and 9 from DND Fire. Air resources include 5 DNRR helicopters and 1 water bomber from Newfoundland and Labrador.
Hammonds Plains Road fire	<ul style="list-style-type: none"> Fire is holding at 4 hectares and is 100 percent contained. 10 HRFE firefighters are on site.

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Other	<ul style="list-style-type: none"> • HRFE leaders facilitate Resident Bus Tour, for those who lost their homes.
Building Investigation and Release	<ul style="list-style-type: none"> • HRFE Fire Chief as “Assistant to the Fire Marshal” stands up a “Building Investigation and Release” Taskforce Section under the Tantallon IC. • Taskforce includes HRFE Division Chief, OFM Deputy Fire Marshal, HRFE and OFM Investigators and Inspectors, HRM Building Standards Manager and IBC Vice President.
JUNE 3	
Upper Tantallon fire	<ul style="list-style-type: none"> • Fire is 85 percent contained at an estimated 950 hectares. • Firefighters on the scene include 40 from DNRR, 108 from HRFE and other mutual aid fire departments, and 9 from DND Fire. • Air resources include 2 DNRR helicopters and a water bomber from Newfoundland and Labrador. • Containment efforts include fire-suppression methods, including dozer breaks, natural breaks, and roadways.
Hammonds Plains Road fire	<ul style="list-style-type: none"> • Fire declared under control; 100 percent contained. • 10 HRFE firefighters remain on the scene.
Other	<ul style="list-style-type: none"> • HRFE leadership facilitate second Resident Bus Tour for review of impacted fire area, for those who lost their homes.
JUNE 4	
Upper Tantallon fire	<ul style="list-style-type: none"> • Fire declared under control; estimated 950 hectares and 100 percent contained. • Firefighters on the scene include 40 from DNRR, 30 from HRFE, and 9 from DND Fire. • Containment efforts include fire-suppression methods, including dozer breaks, natural breaks, and roadways.
Hammonds Plains Road fire	<ul style="list-style-type: none"> • Fire under control at four hectares and is 100 percent contained.
JUNE 5	
Upper Tantallon Fire	<ul style="list-style-type: none"> • HRFE onsite wildfire operations command terminated. • HRFE logistics staff released from scene. • HRFE investigators, and OFM inspectors remain on scene. • HRFE facilities tour of area for elected officials.
JUNE 6	
Building Investigation and Release Section	<ul style="list-style-type: none"> • Team of Inspectors/Investigations and HRD Dog with Handler on site. • Investigations begin and property releases for residents commenced. • HRFE Fire Prevention coordinated site visits for Irving, Rogers, and third-party fencing contractors.

Wildland Urban Interface Wildfire: May 2023

	<ul style="list-style-type: none"> Fuel leak concerns reported to NS Environment.
Other	<ul style="list-style-type: none"> HRFE escorted a media pool into the impacted area. Westwood Hills, Carmel Crescent and nearby streets, and Bonsai Drive and nearby streets were visited.
JUNE 7	
Building Investigation and Release Section	<ul style="list-style-type: none"> Team of HRFE and OFM staff on site. All properties on Bonsai, Yew, and Cypress have been cleared, and releases delivered to owners. All properties on Yankeetown, Jenna, Caper, and Hammonds Plains Road, Blue Jane Lane, Juneberry, Westwood, Wyndham, Ranchwood, Fullwood, and Hemlock have been cleared. One HRD dog working on site with handler from New Brunswick Coroner's office. Nova Scotia Medical Examiner's Office staff on site. All properties on Bonsai, Yew, Cypress, Hammonds Plains Road, Westwood Blvd, Juneberry Lane requiring fencing are complete.
JUNE 8	
Building Investigation and Release Section	<ul style="list-style-type: none"> Team of HRFE and OFM staff and HRD Dogs with Handlers on site.
JUNE 9 – 13	
Building Investigation and Release Section	<ul style="list-style-type: none"> Team of HRFE staff on site, focusing on installing temporary fences to secure all the hazards present at cause and origin investigation sites. Work was prioritized to release the most homes possible.
JUNE 14	
Building Investigation and Release Section	<ul style="list-style-type: none"> All properties open to residents. 174 Investigations completed. 166 buildings fenced, inspected by HRFE staff for completeness. 157 of 166 property release forms signed.
JUNE 15 – 19	
Building Investigation and Release	<ul style="list-style-type: none"> Final property release forms completed.
JUNE 20	

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Building Investigation and Release	<ul style="list-style-type: none">• Building Investigation and Release Section reports section work is complete.• The HRFE cause and origin investigations, site security, and property releases resolved and no field work for HRFE remains.
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Photo credit: Communications Nova Scotia

Methodology

The Taskforce embarked on a two-phase process to conduct a thorough PIA: data gathering and analysis. The data-gathering process commenced with a review of dispatch records, notes, and recollections to collate an exhaustive list of all stakeholders engaged with the HRFE response and operations (Appendix B: PIA Stakeholder List). The stakeholder list was then reviewed to create groupings of stakeholders with the most engagement to the least engagement with HRFE. The groupings were then assigned various data-gathering methods, including a mixed methods approach of interviews, focus groups, and surveys. Additionally, the Taskforce established a dedicated email and welcomed electronic submissions, as well as written submissions by post mail. The scope of this data-gathering phase is outlined in Table 1.

Table 1: Scope of Data Gathering Tools	
Agencies or HRM Business Units contacted	11
Interviews conducted	25
Focus Groups conducted	8 focus groups encompassing 25 people
Surveys distributed	<p>1 to HRFE (approx. 1000 people, 91 responses) 1 to external fire departments (9 responses) 1 to other agencies responding (9 responses)</p> <p>40 email addresses from 17 different agencies and fire departments were sent the link to both the non-frontline firefighting personnel (agency) survey as well as the link to the frontline firefighter survey, with encouragement in that email to forward the survey to any other personnel in the agency that were involved with the wildfire response.</p>

All interviews, focus groups, and surveys were introduced with a standard preface outlining the exercise's scope and intent, including ground rules for providing feedback (Appendix C: Data Gathering Ground Rules). Interviews and focus groups were conducted with at least two Taskforce members present. They followed a semi-structured format to allow for exploration and clarification of issues. The Taskforce conducted each of the one-hour interviews for the focus groups. It ensured a comprehensive review of the event by allotting at least fifteen minutes for each of the three phases of the event: initial response (the first 24 hours), sustained operations, and demobilization. During the review of each phase, the Taskforce requested participants to recount their experiences. Then, it would delve into the response by asking participants to appraise the operations utilizing four probing questions:

1. What was expected to have happened (planned or exercised previously)?
2. What occurred?
3. What went well, and why?
4. What can be improved, and how?

A standard survey was distributed with only contextual editing of modified versions to appropriately address each respective agency (Appendix D: Survey Questions). Response data from the surveys is contained in Appendix E.

A document review was performed, which included internal documentation and external information sources. Internal documents encompassed the fire data management (FDM) incident files, dispatch notes, computer aided dispatch (CAD) records, and applicable policies and procedures. External document sources covered PIA/after action review (AAR) of some other similar WUI wildfire events in Canada and the United States, and previous risk-hazard assessments of the local area, as well as standards and guidelines for WUI wildfire operations, training, and equipment. A complete list of all supporting documents is contained in Appendix F.

The Taskforce then moved on to the Data Analysis stage, which included reviewing and interpreting all data sources. Members of the Taskforce individually presented their identified themes, which were placed into a matrix. This process identified the commonality and strength of themes across data sources. Any observations that did not have commonality were

separately explored with further review of data sources to seek justification for the observation as valid. All observations were classified into one of thirteen themes as agreed upon by the Taskforce.

A writing schedule was then developed with each Taskforce member assigned sections and a few themes. Taskforce members were provided the observational data associated with each theme for drafting the respective sections. The draft sections were then combined and collectively reviewed and edited by the Taskforce for formatting and content. The draft report was then vetted by external subject matter experts, comprising practitioners in Canada's Emergency Management (EM) field. The external review was for analysis of report content for alignment with current EM knowledge and practice. An internal review was then performed with a Steering Group of senior officials within HRFE. The Internal Steering Group review was to ensure report content was contextual and applicable to HRFE.

Findings

The Findings section of this report delve into the response operations to identify areas for improvement and highlight strengths to sustain. However, the learnings to be outlined shall not overshadow the human effort that was displayed.

Resoundingly, throughout the PIA process, the Taskforce heard about the hard work and dedication of everyone involved in the response. Under extraordinary circumstances, including dangerous fire conditions and extremes of weather from hot and dry to cold and wet, people worked hard to serve, support, and save the community. Many involved in the response were both responders and residents who suffered personal losses at their homes in the same community they were fighting to defend, which underscores the community-based effort of neighbors helping neighbors. Despite this unprecedented event, in terms of scope, size, and duration, everyone worked well together without loss of life or significant injury.

The methodology used by the Taskforce identified thirteen themes, which will be further discussed separately and are listed below.

1. Major Event Response
2. Evacuation
3. Accountability
4. Safety
5. Wildland Urban Interface Wildfire
6. Firefighting
7. Water Supply
8. Mutual Aid
9. Logistics
10. Emergency Fleet Services
11. Telecommunications and Technology
12. Emergency Public Information
13. Fire Investigation



Photo credit: HRFE

Major Event Response

Major Event Response Plan

The response to the May 2023 WUI wildfire constituted a divergence from the conventional day-to-day operations of HRFE. The scale and duration of the event, compounded by the multi-agency operations, presented an unprecedented event. It was reported that the standard operating procedures of HRFE did not provide clear guidance for such an incident. Broadly, participants recounted a genuine response effort to do what was perceived as the best course of action without a clear operating policy or procedure to guide such a magnitude incident response. For example, off-duty operational personnel, several in leadership positions, initiated response to the site without formal activation. The rapid escalation to a five-alarm alert demonstrated the realization that the incident was beyond typical operational contingencies. **The rapidity of alarm escalation and the self-dispatch undertaken by many were strengths to be highlighted as they demonstrated a level of situational awareness, the need for resources, and the strength of the human capital within HRFE. Likewise, the level of self-dispatch reflects an opportunity for improvement, as there was a lack of clarity regarding the expected response.** Some within the organization communicated a sense of being underutilized and not activated (i.e., some administrative and leadership roles).

The scope of this or similar events is complex to capture individually within policy or procedure. Multiple or complex response plans can be ineffective in significant incidents, as the information contained is seen as complicated or forgotten during the stress of a substantial event response. An endeavor to write separate and detailed procedures for specific large-scale events is not recommended; instead, an all-hazards approach for an operational guideline that is flexible and adaptable to a wide range of events is preferred. The all-hazards approach facilitates the likelihood of the document being used in a significant event response, enables education and retention of the information, and provides an agile framework that can be applied independent of incident type. In addition, it ensures that the organization is utilized at total capacity and offers clear guidance for all personnel within an organization. **It is recommended that a major event response plan (MERP) is developed specifically for HRFE operations.**



Photo credit: HRFE

A MERP outlines the roles, responsibilities, and actions across an entire organization based on the scale of response capacity. A MERP can have multiple levels of response with various levels of designation, such as a numeric or color-coded response level (i.e., Level 1 to 5 or Code Green, Yellow, or Red). Refraining from a complex MERP and maintaining response plans of three to five levels is advisable. One approach is to align MERP actions with the Five Levels of Incident Complexity as outlined by the Incident Command System. Another common MERP determination is the 3-C model (conventional, contingency, and crisis) adapted from the United States Center for Disease Control Crisis Standards of Care. The 3-C model describes the three standards with associated indicators and triggers for each level and the corresponding response of the organization at each level:

- **Conventional:** outlines the everyday activities of the agency with an identification of all areas and capacities within the organization. This step is vital as it provides a comprehensive inventory of all assets (i.e., personnel, equipment, space, etc.) across all levels of the organization (i.e., response, support, leadership, administrative, etc.). The conventional plan is foundational and becomes the basis for adapting an organizational response outside normal day-to-day activities. Policy and procedure for typical day-to-day operations reside under conventional operations.
- **Contingency:** This level identifies the triggers for adaptation of conventional operations in response to an event. Contingency operations can maintain functionally equivalent operations across an organization by temporarily suspending or redirecting some conventional capacities to support an event when the demands of the incident exceed conventional parameters.
- **Crisis:** the crisis level constitutes a significant adjustment of organizational functions with suspension and redirection of all organizational capacities to maintain the best possible response for essential organizational operations.

When pre-determined triggers or indicators for respective levels of a MERP plan are identified, an organization-wide notification is enacted. Contained within each level are prescribed actions and expectations for every level and role within the organization; often, this is supported by individual role or department action cards. For example, during the May WUI wildfire response, a member of the Fire Strategic Team (FST) as done during other extreme weather events, reported to the Integrated Emergency Services (IES) dispatch center. This action proved to be a significant benefit in response coordination. Embedding this responsibility within a MERP, as assigned to a specific role, will ensure the reliability of this role being enacted and provide clarity of role expectations across incidents. The Chief Officer on-call process that HRFE had established was an advantage in facilitating this response capability.

Furthermore, organization-wide communication was reported as a variable during the May WUI wildfire event. **Recall of operational front-line personnel was conducted using the internal Everbridge notification system. The Everbridge system was noted to have been a benefit.** However, it was reported as being partially prepared during the event. Since the event, the Everbridge system has been fully enacted to cover all operational staff. Some HRFE staff, especially non-frontline personnel, reported needing to gain knowledge or details about the organizational response to the event and needing to receive communication. In the absence of information and expectations during the event, they attempted to continue with everyday activities. **There is a need to ensure all organizational personnel receive notifications and directions during a major event response.** With all levels of an organization fully informed on the status of organizational functioning and role-specific expectations, HRFE can ensure that the organization is responsive and agile to support optimal effectiveness and efficiency of organizational capacity.

Developing a MERP is a substantial undertaking and would require considerable interruption and redirection of duties of any current personnel within HRFE. **To facilitate the timely completion of a MERP, it is suggested this work is supported by a duly qualified subject matter expert with the available time and appropriate resources. A MERP should be prepared and then supported by mandatory training for all HRFE personnel.**

It is important to note that a MERP differs from a business continuity plan (BCP). A BCP is focused on threats to organizational functioning and should outline the contingencies, alternatives, and recovery operations for organizational performance. A MERP outlines how an organization will adapt performance to support a response to an external event. For a high-reliability organization, such as HRFE, a single event can require the activation of a MERP and BCP. **As the work needed for both the MERP and BCP will be closely linked, it is advisable to capitalize on the MERP project and complete an updated HRFE BCP at the same time.**

Incident Command System



Photo credit: HRFE

Integrated with any significant event response is the requirement for interoperability between multiple organizations. Foremost within interoperability is the need for an integrated structure, common language, and mutual understanding for information flow and decision-making, which is attempted to be achieved using the incident command system (ICS). **ICS was implemented during the May WUI wildfire event and was a strength and presented an area for improvement.**

Many of the operational commanders from various agencies noted the benefits of ICS included in the Incident Management Team (IMT) structure and clarity of authority with DNRR as being the lead agency and assuming the role of Incident Commander (IC). The unified IMT operated from the Incident Command Post (ICP) set up in Upper Tantallon. This awareness and adherence to the ICS IMT structure facilitated organizational alignment, decision-making, and clarity on roles and responsibilities across the numerous agencies involved in the response operation. Within the first operational period (15:40-07:00, May 28-29, 2023), the HRFE IC implemented five tactical priorities:

1. Evacuation.
2. Fire - containment and control.
3. Maintain defensive perimeter around White Hill's Long Term Care Center and water treatment plant.
4. Night Operation of drones for reconnaissance and situational awareness.
5. Identify civic/street addresses of homes affected by fire and evacuated.

Outside the IMT Command Staff, two operations sectors were established, West Sector out of Upper Tantallon to coordinate activities in the West and East Sector from HRFE Station 50 in Hammonds Plains to coordinate activities on the wildfire's East side. Several sector-level commanders and operational personnel stated they were unaware of the IMT Command Staff structure. This lack of awareness of the enhanced ICS structure implementation permitted confusion and duplication of some efforts. For example, it was stated by one sector commander that not knowing the IMT Command Staff structure and personnel assigned to ICS roles led them to "fall back to do what we do every day". This reliance on typical day-to-day operations led to a loss of awareness at some levels. As reported by some support roles, it resulted in

duplication of requests. In conjunction with this lack of awareness to get things done, several participants recounted leaning on pre-existing personal relationships between agencies versus trying to figure out the appropriate ICS Command Staff process.

ICS is stated as an expectation of HRFE personnel on major multi-agency incidents. However, the standard fire ground operations command methodology of Blue Card is used in day-to-day fire operations. Although Blue Card is integrative within ICS for larger scale and scope incidents, there was a lack of practical integration during this event. As ICS is the standard IMT structure used by allied emergency agencies, HRFE must ensure competency with ICS utilization for all incident types. Human behavior predicts that during times of stress or unfamiliar circumstances, people revert to what they are comfortable with and that expecting a different method of performance during extraordinary circumstances could be problematic. During major events, for optimal performance, the actions and expectations of personnel should be familiar and as aligned as possible to normal daily operations, a routinized habit. **It is recommended that HRFE review and implement practical methods to enhance the understanding and application of incident command guidelines during higher-class incident types.**



Photo credit: HRFE

It was reported that operations within sectors varied depending on the sector commander. Likewise, at the IMT Command Staff level, there was an expectation that roles would be consistently staffed by the same personnel throughout the event. Both views can be unified with a more robust understanding, training, and use of ICS. ICS is structured for consistent performance over time, regardless of the individuals that fulfill each role. Furthermore, some sector commanders stated they could not maintain command and control. This experience is common with temporally or spatially distributed events versus a single residential fire, isolated to one location and often resolved within hours. Large-scale events that extend across geography and time, like the May WUI wildfire, require a shift in management from strict command and control to coordination and support. This shift is achieved by developing and disseminating

Incident Action Plan (IAP) within the ICS structure and empowering and delegating field operational crews.

Situational awareness and information flow are vital to any emergency response and more so in the scale of incidents experienced with the May WUI wildfire. **A strength of the May WUI wildfire information flow process was that each day at the ICP in Upper Tantallon, an all-agency briefing was conducted, and IAPs were distributed.** Although there was reported inconsistency of the information from the daily all-agency briefing being shared across all operational sectors and personnel (i.e., at Station 50 in Hammonds Plains), as well as the lack of any additional all-agency briefings throughout the day. **An area for improvement should be to work to increase information flow between the Ops section chief for the IMT and frontline members.**

With the scope of the May WUI wildfire, HRM had established an Emergency Operations Center (EOC) independent of the ICP. This establishment of the EOC was appropriate and required with this incident. The IC (DNRR) shared the incident action plan for all operational cycles with the EOC and held many impromptu meetings. HRFE provided a liaison in the EOC, and the Fire Chief and RCMP Chief Superintendent attended the EOC twice daily to provide updates. Initially the Fire Chief recommended that an EOC liaison be assigned to the site to improve communication, this was implemented a few days into the incident. Despite these provisions there is still benefit in clarifying the type and frequency of information that flow between the site and EOC. **It is recommended that the HRM Emergency Management Committee develop a process for improved communication during significant events.**



Photo credit: HRFE

Finally, interagency exercising is equally paramount beyond theoretical training and certification in ICS. Interagency exercises allow agencies to practice and refine interoperability outside the stress of incident response and understand each other's capabilities and resources. One of the most significant benefits of interagency exercises is the development of interpersonal connections across agencies, which has proven critical in effective multi-agency incident response. **It is recommended that HRFE continue to collaborate with other emergency response agencies for regular interagency exercises, including field/practical exercises.**

Evacuation

First Responders placed themselves in harm's way to evacuate residents from the wildfire path. Primary efforts were focused on the communities of Westwood Hills, Highland Park North, and the area around Yankeetown Road. Firefighters toiled to contain the wildfire to the West of Pockwock Road. This was done to prevent the wildfire from impacting the water treatment plant, the White Hills Long Term Care Facility, and the White Hills Subdivision. Drone technology was used to monitor the movement of the wildfire and identify damaged/destroy structures.

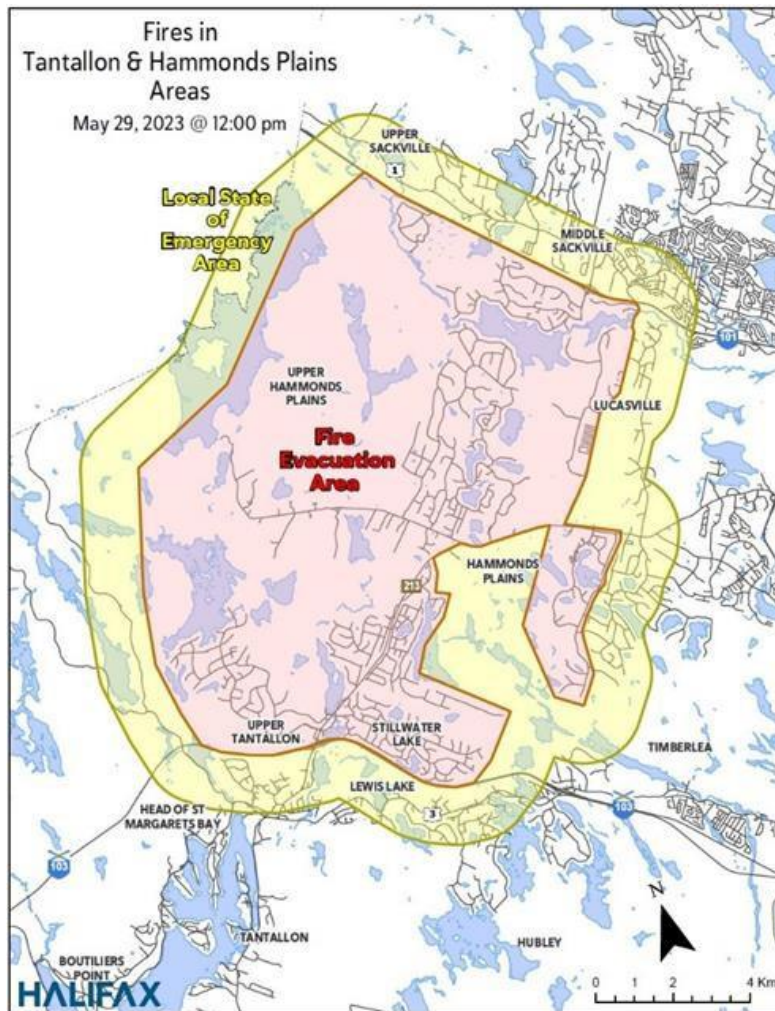


Photo credit: HRM EOC

To protect life, the May WUI wildfire necessitated an evacuation of the immediate area impacted by fire and the surrounding areas at risk from smoke and fire. The speed and scale of the initial fire were significant, and the first responding emergency crews rapidly appreciated this risk. The preservation of life is the primary goal of emergency services, and those early responders achieved that objective under extreme circumstances and within a compressed period for assessment, planning, and reaction. Those early responders' valiant efforts during harrowing conditions and the risk undertaken to save others must be acknowledged and commended. **A**

strength of the response was the quick initiation of evacuation, which ultimately avoided any loss of human life.

The early stages of evacuation reportedly needed some clarification on authority and process. The public alert for evacuation required several time-consuming steps and levels of approval. **The procedure and authority for issuing public alerts was identified as an area for improvement.** With the presence of the overt danger, fire and police officers commenced door-to-door evacuations in the zone of direct fire risk. As the evacuation extended beyond the initial day, there needed to be more certainty surrounding the ongoing authority to maintain the evacuation. Integral to any evacuation is the requirement for all agencies to clearly understand the legal authority for the initiation of the evacuation, as well as the transition of legal authority to maintain the evacuation as the incident characteristics change over time. It is crucial that there is understanding by residents and authorities on the statutory requirements and differences between an evacuation alert versus an evacuation order. As examples, in the Supporting Documents, refer to: *Prepare to Evacuate, Government of Alberta*, and *Emergency Alerts and Orders. City of Kamloops*. Further work to conduct a thorough legislative review of evacuation authority, including parameters surrounding alerts and orders, might be reasonable however, such work is beyond the scope of this report.

There were reported occurrences of residents and other unofficial personnel crossing some road checks, such as entering the ICP location to offer assistance. The entry of these personnel reportedly raised questions on the restrictions and authority for maintenance of the checkpoints. **It is recommended that HRFE collaborate with HRM Community Safety, Provincial EMO, DNRR, and police agencies to streamline the procedures for public alerting and clarify authority for instituting and sustaining evacuation.**



Photo credit: HRFE

Evacuations are extremely disruptive yet necessary to protect life, and as the evidence demonstrates from the May WUI wildfire, no human life was lost. The evacuation was a commendable achievement, although it provides an opportunity for review and improvement in planning future evacuations. With retrospective review, many participants considered how the evacuation would have unfolded if it had happened at a different time of day, such as at night or during the school day. These questions show a healthy critical appraisal and offer opportunities

for learning and planning. Issues that can be considered with evacuation planning, and were points raised by many respondents for future clarification include, but are not limited to:

- Alerting and notification: when, how, and by whom, including consideration of vulnerable populations that may not be able to receive or interpret emergency cellular alerts.
- Evacuation procedure: how to ensure effective and efficient evacuation of people, including vulnerable populations that may not have personal transport or cannot independently evacuate, and evacuation of small and large animals which can directly impact human evacuations.
- Sheltering options: pre-plans for shelters with needed capacity for volume, services, and safety, as well as consideration for special needs of at-risk populations and accommodation of animals.
- Accountability: understanding and processes to verify evacuation zones are clear and all residents have been accounted.
- Management of emergent behavior: emergent behavior is expected in most community emergencies of all sizes, which encompasses informal and volunteer efforts initially of residents offering to assist (i.e., neighbors helping neighbors) and then subsequently goodwill citizens from outside of the local area. Emergent behavior was experienced during the May WUI wildfire with food donations and multiple offers of miscellaneous support. Many of the offers could not be accepted due to concerns of liability and process; however, they demonstrate an available resource for consideration in planning for future emergencies.
- Communication: beyond evacuation alerting, the need for ongoing communications and updates to those displaced by an evacuation is critical, especially information on returning to the evacuation zone and preparing residents to return home.
 - Essential to the success of this stage is the need for all involved authorities to be involved in the planning process for the lifting of any evacuation orders and understanding of the associated legal authority.

These reflections by respondents demonstrate a genuine concern for the residents displaced during the evacuation. **It is recommended that HRFE collaborate with community partners to ensure a holistic approach to evacuations and build a mutual understanding of legal accountabilities.** Such community partners may include but are not limited to, HRM Community Safety, Emergency Health Services (EHS), HRM, HRP, RCMP, Nova Scotia Health, other community agencies and non-governmental organizations, and animal service organizations. Implementing the HRM Voluntary Vulnerable Persons Registry is a good initiative that can begin to inform and support evacuation planning.



Photo credit: HRFE

Accountability

Accountability is recording personnel that arrive and depart an incident scene and tracking personnel's assignment and location while on site. This is a critical procedure as a component of safety and for effective resource utilization that ensures incident commanders have full situational awareness. Accountability is achieved through a combination of methods, including onsite manual tracking, logging of dispatch activity within computer aided dispatch (CAD) system, and using technology such as electronic tracking (i.e.: automatic vehicle locators AVL., RF ID Tags, etc.).

During the May WUI wildfire, concerns about accountability were reported. There were reported occurrences of self-dispatching, whereby some individuals or crews responded to the scene without formal dispatch activation. Some self-dispatch occurrences were not reported in or coordinated with on-scene commanders. These actions of self-dispatch introduced a level of risk. They potentially removed resources as part of an overall practical and coordinated effort. In addition, the CAD system was not integrated with the AVL system, and the apparatus was tracked manually at dispatch. This manual dispatch tracking contains the probability of not having real-time data on assigned vehicle and crew locations. It excludes any passive vehicle activity that would be missed with self-dispatch by individuals or crews. Finally, personnel movement's volume and dynamic nature at the incident scenes reportedly overwhelmed the manual procedures typically used at fire scenes. There were reported incidents of fire personnel developing electronic accountability tracking sheets on the spot. The efforts of electronic accountability tracking demonstrate ingenuity; however, they integrate risk with an unfamiliar, non-standard procedure.

Accountability is an area for improvement, and it is recommended that HRFE prioritize work on an accountability project with IT. Topics suggested for priority evaluation within accountability are developing and instituting an onsite electronic personnel accountability system inclusive of all firefighting and non-firefighting personnel that enter an incident site, pursuing AVL integration with CAD as it is an industry best practice, and assessing self-dispatch procedures and education.

Safety

This WUI wildfire event was significant and included many dangers and high risks. **Despite the hazardous conditions, there was no loss of life and no significant injuries to residents or responders, which is a substantial outcome that needs to be acknowledged.** These are some of the examples of the incredibly valiant activities performed on May 28 during the dangerous and arduous conditions:

- Four HRFE vehicles drove East on Hammonds Plains Road towards Fire Station 50. Near Yankeetown Road, fire conditions rapidly deteriorated. The wind changed direction, and the vehicles were caught inside the path of the wildfire. Two vehicles at the back could escape by turning around on the road and driving west towards the St. Margaret's Centre. The two fire trucks in the front could not turn around and had to go through the fire to reach safety.
- HRFE personnel were alerted to an older adult with impairments refusing to leave home. Extreme fire conditions were present around the residence, and two HRFE firefighters drove through intense fire conditions to perform a rescue. Under worsening conditions, they moved the person to a safe location and transferred care to paramedics.
- HRFE firefighters were tasked to assess fire conditions on Westwood Blvd. On arrival, they observed heavy fire conditions and heard cries for help further down the street. They proceeded through the flames and smoke, where they found two individuals. They assisted the two individuals into the fire apparatus, exited the immediate danger area, and provided first aid while they awaited paramedics in a safer location.



Photo credit: HRFE

Beyond the harrowing conditions experienced on the first day, there were ongoing safety considerations throughout the week. **The firefighter rehabilitation and support initiatives implemented during the WUI wildfire were a strength of the safety plan.**

Wildland Urban Interface Wildfire: May 2023

- Heat Stress Management: Temperatures throughout the week routinely exceeded 30 degrees Celsius. Two HRFE firefighters suffered minor heat stress injuries. They fully recovered and were fit for duty the next day. Measures implemented to reduce heat stress included:
 - Daily safety briefings.
 - Mandatory hydration breaks.
 - Appropriate work/rest cycles.
 - Adequate supply of potable water.
 - Sunscreen supply.
 - Cooling centers with cold towel therapy and forearm emersion chairs were established at the St. Margaret's Centre and HRFE Station 50.
 - Tents were set up to provide shade from the sun, and there was access to the indoor facilities at the St. Margaret's Centre and HRFE Station 50.
- Cold Stress Management: At the end of the week, the hot, humid conditions transitioned to cooler temperatures and rain.
 - Warming centers were established at the indoor facilities of the St. Margaret's Centre and HRFE Station 50, and tents were used to provide shelter from the rain.
 - Daily safety briefings.
 - Appropriate work/rest cycles.



Photo credit: HRFE

Firefighters on the scene wore the same Nomex coverall daily for multiple days. There was no ability on the scene to clean or exchange coveralls with a clean set. Onsite firefighters were provided wet wipes to remove soot from their faces and hands before eating or consuming fluids. To facilitate further cleaning, they had access to washroom facilities at HRFE Station 50 and the St. Margaret's Centre. Furthermore, firefighters were advised to shower immediately upon returning to the fire station or their home. Rain gear is not issued to structural firefighters, so during the rainy days, some members wore wildland coveralls, and they ended up soaked. Others wore bunker gear to stay dry. Fortunately, fire control operations were winding down when the rain began, and personnel requirements were minimal. **It is recommended that HRFE prioritize the establishment of the wildland protective clothing and equipment**

working group to determine wildland PPE requirements and develop guidelines for the selection, use, and maintenance of wildland protective clothing and equipment.

The EHS Emergency Preparedness and Special Operations (EPSO) Paramedics provided medical support onsite with a 24/7 presence at the Upper Tantallon ICP and daytime coverage at HRFE Station 50. Besides support and response for acute medical emergencies, EPSO paramedics supported firefighters for less acute issues, including standby at the cooling and warming stations to monitor firefighter wellness. Within the cooling and warming stations, EPSO paramedics proactively provided information on signs, symptoms, and actions to be taken related to heat and cold emergencies. During the resident-escorted viewings of the fire impact zone, EPSO paramedics ensured operational readiness for response. They connected with the Division Chief of Medical for direct communications with the resident buses. **The onsite support of EPSO paramedics was a strength of the interagency operation.**



Photo Credit: HRFE

HRFE Operating Guideline 4060 does provide medical monitoring protocols. Still, it was decided that it did not provide adequate guidance for the incident. The Acting Division Chief of Safety, the Division Chief of Medical, and the EPSO Supervisor established an interim medical evaluation protocol for HRFE personnel. EPSO paramedics only used the interim protocol twice when assessing two HRFE members with heat stress events. EPSO stated that the most frequent medical issue paramedics had to deal with were foot issues, likely due to:

1. Improper footwear: steel toe/shank boots resulting in blisters and soft tissue damage.
2. Lack of foot care: changing socks, applying foot powder, using moleskin bandages, or drying feet.

It is recommended that HRFE revise Operating Guideline 4060 to include a comprehensive firefighter medical rehab and wellness directive, including education to firefighters regarding foot care while on extended operations.

Some personnel reported concerns about the need for dedicated safety officers for each Sector/Division, as the Platoon Captain assumes this responsibility during typical fire incidents. The scale of this event meant that dedicated safety officers could not be assigned to each crew. The officer in charge of each fire apparatus was the primary safety supervisor for each crew.

Any safety issues noted during work/rest cycles would be reported to the IC of the Sector/Division. The Acting Division Chief of Safety checked in with the Sector/Division ICs frequently each day for updates on safety-related concerns. In addition, mobile safety patrols were conducted throughout the hazard zone by Platoon Captain Volunteers and the Acting Division Chief of Safety. As previously noted, **despite the dangers present, there was no significant injury and no life lost, which is a strength of the response to highlight.**

As expected, there were many hazards in the fire zone besides the fire, such as melted driveway culverts resulting in collapsed driveways, melted septic tank covers exposing open holes, and slippery walking conditions due to burnt and fallen trees. A main roadway culvert on Hammonds Plains Road had been destroyed in the fire, creating a break in the main thoroughfare. Smoke conditions varied in intensity and composition based on the source of fuel that was burning (i.e., timber, building materials, miscellaneous substances contained within and around structures impacted by fire, fire suppression foam, etc.). The HRM Team Lead for Corporate Safety reported concerns about the safety PPE required at the fire site (i.e., footwear, respiratory protection, etc.). However, these concerns should have been disseminated as directives through the official IMT processes. **It is recommended that HRFE review environmental safety concerns to ensure guidelines and appropriate processes are developed for future incidents.**

The WUI wildfire was a stressful event for residents and responders. The HRFE Firefighter and Family Assistance Program (FFAP) Coordinator was on site throughout the incident. FFAP Peer Support members spent time at both the St. Margaret's Centre and HRFE Station 50, and the therapy dogs were brought onsite. Further written communication was distributed within HRFE and HRM, reminding staff of available mental health supports. **The actions supporting the onsite responder's mental health were a strength to be commended.** Some participants onsite and external to HRFE and some internal HRFE personnel who were not on site but equally engaged and impacted with off-site support activities reported not being aware of the extent and availability of mental health support. **It is recommended that HRFE review and revise the FFAP program education to ensure delivery and accessibility to personnel who may not be directly engaged with onsite operations.**



Photo credit: Communications Nova Scotia

Wildland Urban Interface Wildfire

HRFE is an All-Hazards response agency. Like most municipal fire departments, HRFE is primarily a structural firefighting organization as DNRR is the AHJ for forest fires. HRFE is well-equipped, trained, and experienced for offensive structural firefighting. Wildland firefighting service levels for HRFE are outlined in an HRM Administrative Order 2018-006-OP and include three types of firefighting service: structural (offensive), wildland (ground cover fires), and marine vessel (defensive and support). HRFE completed a community risk assessment and identified wildfires in the WUI as a risk. HRFE increased staffing in rural areas as part of a regional response strategy and developed an internal WUI strategy to help mitigate risk. Wildfires in the WUI is a unique fire emergency that encompasses both structural and wildland firefighting particularly when they are wind driven. The strategies and tactics for a large wildfire in the WUI dictate a new approach to firefighting.

HRM is one of the fastest growing municipalities in Canada and has expansive wildland within its borders, leading to expanding development into these wildland areas. This development, compounded by climate change, is changing the risk profile for WUI wildfire in HRM. **It is recommended that HRFE update the existing draft WUI strategy.** The WUI wildfire strategy encompasses areas of:

- Wildfire officer and firefighter training including strategies and tactics.
- Public education, Mitigation, Preparedness, Building Codes and Prevention.
- WUI-specific fire equipment, technology, and vehicles.
- Review all guidelines and policies to include revision and sufficient guidance for WUI wildfire.



Photo credit: CBC News (May 28, 2023)

As WUI wildfire is an area of specialty knowledge and skill, **it is recommended that the newly established HRFE Wildfire Mitigation Program Manager prioritizes the implementation of the updated WUI strategy.** The WUI strategy will need to encompass many Divisions of HRFE, such as Training, Operations, Logistics, and Community Risk Reduction as well as collaborate

and engage with external partners, such as the OFM, DNRR and HRM Community Safety, Planning & Development and foster participation with other community groups, agencies, and residents.

Specific to firefighter training, there should be an added focus on wildland firefighting knowledge and skill. HRFE firefighters are trained to the National Fire Protection Association (NFPA) 1001 Standard, which includes a curriculum on wildland fires. Yet, structural firefighting is the primary focus and ongoing practice and deployment for HRFE firefighters. DNRR can assist with interagency training on wildland firefighting for structural firefighters. Furthermore, wildland firefighting equipment requirements should be assessed as part of the WUI strategy. The equipment assessment should encompass the types of equipment needed, the quantity of items, and deployment considerations, such as strategic pre-placement of equipment caches and preplan for rapid mobilization. HRFE had two pallets of extra wildland firefighting equipment in addition to standard equipment on fire apparatus. However, due to operational tempo, the reserve wildland firefighting equipment was quickly depleted. Further support for wildland firefighting equipment came from DNRR. Moreover, structural firefighting vehicles are not designed for off-road and wildland firefighting; therefore, the needs and requirements for appropriate mission-specific response vehicles must be evaluated with the WUI strategy.



Photo credit: Communications Nova Scotia

There are existing resources that HRFE can leverage to help guide the WUI strategy. The NFPA 1141 Standard outlines recommendations for the protection of wildland, rural, and suburban infrastructure. In 2017, using Fire Smart Canada guidelines, DNRR completed a Wildland Urban Interface Community Wildfire Protection Plan for the Hammonds Plains Road area that recommended resident education, improved community wildfire protection, and guidance on building/lot design. In 2022, a Wildfire Hazard Assessment of the Westwood Hills subdivision was conducted by DNRR, which included recommendations for improving wildfire protection within the community. In addition, FireSmart Canada is a national program that helps Canadians increase neighborhood resilience to wildfire and minimize its negative impacts. It has excellent resource material and guidance. Finally, in 2021, the National Research Council Canada

published the National Guide For Wildland-Urban Interface Fires. The National Research Council publication includes guidance on hazard and exposure assessment, property protection, community resilience, and emergency planning to minimize the impact of wildland-urban interface fires. **HRFE is a FireSmart partner and was one of the first municipal departments in eastern Canada to implement the FireSmart training program in early 2023. HRFE's efforts with FireSmart should continue to be supported to mitigate the risk in the WUI.**

Firefighting

HRFE is a composite fire department that encompasses a mixture of 512 approved career firefighters and 547 volunteer firefighters, as well as support staff. During the wildfire, about 100 HRFE firefighters were tasked each day to conduct wildland firefighting operations in cooperation with DNRR firefighters. In addition, HRFE was supported by neighboring volunteer fire departments, as listed below, and out-of-province support was received from Prince Edward Island, and Newfoundland and Labrador. Neighboring volunteer fire departments that provided mutual aid assistance:

1. Hubbards
2. Enfield
3. Brookfield
4. Mount Uniacke
5. Brooklyn
6. Windsor
7. Hantsport

Career fire departments that also provided aid:

1. Department of National Defense
2. Cape Breton Regional
3. Truro

Firefighters placed themselves in harm's way throughout the incident. They performed many heroic actions, such as rescuing adults and children and relocating domestic pets and farm animals. Working long hours under humid, hot, and hazardous conditions was physically and mentally exhausting. However, morale remained high throughout the incident despite the grueling working environment. **The number of firefighters who answered the call to serve each day and the high effort expended are strengths to be recognized.**



Photo credit: HRFE

The initial response to the WUI wildfire on May 28 was unprecedented. It was reported as challenging due to the scale of the event. The scope of the incident was quickly recognized, and additional resources were requested through the alarm progression from the first to fifth alarm classification. Each alarm level refers to the number of resources (e.g., firefighters and apparatus) needed to deal with the emergency, based on its size and severity. First alarm is the least serious and fifth alarm is the most critical event. This alarm progression was appropriate and is a routine practice in HRFE. There is no written guideline to outline procedures for managing alarm progression. **It is recommended that HRFE use the information in the alarm levels training package/CAD programming to develop an operating guideline for alarm levels in the “hydrant” and “non-hydrant” areas to include procedures for escalation and de-escalation.**

Water Supply

Firefighting relies on the availability of a continuous water supply. Even under normal conditions, the water supply for fire suppression may be compromised. During a WUI wildfire, access to a water supply may be difficult if hydrants and hose lines are exposed to fire. Typical water sources for firefighting are municipal public fire hydrants or dry hydrants and cisterns.

Halifax Water maintains approximately 8,404 public fire hydrants within HRM. Public hydrants are colored either safety orange or safety red. Halifax Water does not maintain private hydrants which are colored safety yellow. The color on top of the fire hydrant indicates the following:

- Blacktop and port covers: Insufficient water flow/volume for firefighting.
- Granite Grey top: Water supplied by gravity pressure.
- Safety Orange/Safety Red: Pressure-reduced water.
- Safety Yellow: Pressure-boosted water.



Photo credits: HRFE

HRFE maintains dry hydrants and cisterns, with approximately 126 dry hydrants and nine cisterns within HRM. A dry hydrant is an arrangement of pipes permanently connected to a water source other than a piped pressurized water supply system that provides a ready means of water supply for firefighting purposes and utilizes a fire department pump's drafting (suction) capability. A cistern is defined as a tank for storing water. **It is recommended that HRFE consolidate and formalize the documents that detail dry hydrant/cistern design, construction, maintenance, and testing requirements.**

Municipal firefighting water sources within the May WUI wildfire incident are listed below and further detailed with locations the Municipal Firefighting Water Source Map.

Wildland Urban Interface Wildfire: May 2023

West Sector/Division A (Upper Tantallon) fire operations' source of water:

- 1 Dry hydrant (DH-514) at 38 Flat Lake Drive.

East Sector/Division B (Hammonds Plains) fire operations sources of water:

- 1 Dry hydrant (DH-531) at 43 Westwind Drive.
- 15 public fire hydrants are located on Pockwock Road.
 - 1 Blacktop (not marked on map)
 - 14 Granite Grey Top (outlined in black on the map)



Photo credits: HRFE

Municipal Firefighting Water Source Map

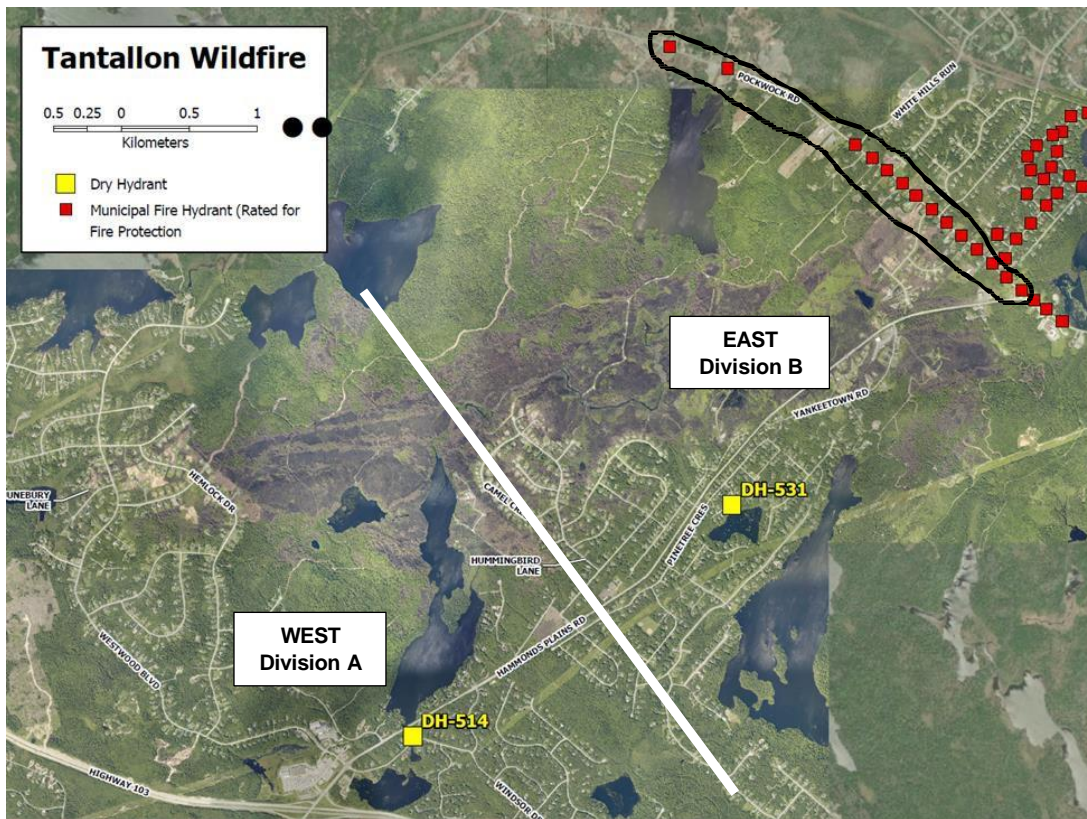


Photo credit: HRFE

On May 28, firefighters set up a defensive line on Pockwock Road. The road acted as a natural fire break. Access to fire hydrants aided in control of the wildfire and extinguishment of hot embers that jumped the line. A combination of cooler evening temperatures, changes in wind direction, and access to fire hydrants all contributed to fire containment on Sunday night and Monday morning.

The Pockwock Road Watershed and J.D. Kline Treatment Plant are critical pieces of infrastructure that supply public fire hydrants and potable water to Halifax, Bedford, and Sackville communities. It is located off the Western end of Pockwock Road. Loss of this facility would have been disastrous for both fire suppression operations and the communities that depend on this water. On May 28, HRFE crews set up a defensive perimeter to protect this vital infrastructure.



Photo credits: HRFE

The White Hills Long Term Care Centre on Pockwock Road could not be immediately evacuated due to resident mobility. HRFE firefighters set up a defensive perimeter around the Care Centre. Access to fire hydrants increased the protection and safety of the firefighters, residents, and staff. It also enabled DNRR to set up structural protection sprinklers around the buildings to soak down the ground and foliage between the wildfire and the care facility.

The 38 Flat Lake Drive dry hydrant was used to move water throughout the Westwood Hills area via water shuttle operations. Water shuttle involves hauling water from a supply source (fill site) to the incident scene. Water is then transferred to engines, tankers, and brush trucks for firefighting. When a dry hydrant is used, an engine or tanker must be connected and remain at the fill site. The assignment of a fire engine to a dry hydrant expedites the water transfer process.

The fire suppression operations and tactical use of available water sources were a strength of the fire response. The planning, coordination, and technical execution of these fire operations procedures is a testament to the training and competency of HRFE members. HRFE was evaluated by the Fire Underwriters Survey (FUS) for the supply of water for residential firefighting according to the Superior Tanker Shuttle Service FUS specifications and qualified for accreditation effective October 15, 2022, for a period of five-years.

In 2022, DNRR completed a FireSmart Canada Wildfire Hazard Assessment of the Westwood Hills subdivision, which highlighted limited access to water sources for wildland firefighting. In

September 2021, the HRM Office of the Auditor General (OAG) released a report on the Management of the Fire Inspection Program. That OAG report noted that “certain subdivisions were built without appropriate fire safety specifications, such as inadequate water sources to fight fires”. The OAG report indicated a need for better alignment between HRFE and the HRM Planning and Development regarding the review process for subdivision applications. Furthermore, egress for residents during the evacuation, and access for first responders was a known challenge. **It is recommended that HRFE management continue to communicate with HRM Planning and Development management regarding involvement in reviewing all subdivision applications.** Specific HRFE Divisions to be considered for engagement with the subdivision application review process are the Fire Prevention Division and the Technology and Innovation Division. These Divisions, along with HRFE’s new Wildfire Mitigation Program Manager, can provide input on water supply requirements, access/egress routes, future fire station locations, and potential development impacts on emergency service delivery, as well as ways to minimize the wildfire hazards associated with new uses of land.

Mutual Aid Support

HRFE received incredible mutual aid and support from neighboring fire departments. Crews and apparatus from Hubbards, Mount Uniacke, Windsor, Hantsport and DND Fire all arrived that first afternoon and many others provided support throughout the following days. **The mutual aid departments' willingness, equipment, and skills contributed significantly to battling the wildfires.** On the ground, HRFE and DNRR firefighters referenced the DND brush truck's important role in battling the blaze throughout the impacted neighborhoods.



Photo credit: HRFE

Each day, the IMT would indicate which visiting fire departments were assisting. Some career and volunteer HRFE firefighters expressed frustration that volunteers from other jurisdictions were arriving to help while they were available. As the IC after day one, DNRR outlined the operational resources required. As well, the deployment strategy was designed to ensure that the remainder of the HRFE’s jurisdiction was appropriately resourced for other emergencies and considerations for crew rest and fatigue for what was expected to be an extended incident. Fire risk throughout the first half of the week remained high, evidenced by multiple brush and

structure fires that HRFE responded to outside of the Upper Tantallon area. **It is recommended that there is further internal communication with HRFE members throughout the event to provide insight and information into staffing during prolonged incidents.**

In addition to mutual aid support from fire departments, the Fire Prevention Division also received mutual aid support from the Office of the Fire Marshal, the New Brunswick Coroner's Office human remains detection (HRD) Dog and Handler, the Ontario Provincial Police HRD Dog and Handler, and RCMP HRD Dog and Handlers. At HRFE's request, the RCMP member in the EOC facilitated bringing in the RCMP and OPP HRD Dogs and handlers from across the Country. Retired HRFE Fire Prevention Officers were also brought in to assist with investigations. **With the magnitude of damage and the large number of buildings requiring investigation, the aid from the OFM Investigators, the HRD dogs, and their handlers was invaluable.**



Photo credit: HRFE

Logistics

HRFE's logistics team's important role in providing nutrition, hydration, equipment, fuel, and PPE during wildfires cannot be understated. **In almost every interview and focus group, the vital work of HRFE's Logistics Division staff was highlighted as a strength for the demonstrated effort, support, and commitment.** Logistics can include a whole swath of functions in a large-scale event such as a wildfire. Critical tasks of Logistics Section personnel can consist of:

- Ordering, receiving, storing/housing, and processing incident-related resources.
- Providing ground transportation during an incident, maintaining, and supplying vehicles, keeping vehicle usage records, and developing incident traffic plans.
- Setting up, maintaining, securing, and demobilizing incident facilities.
- Determining food and water needs, including ordering food, providing cooking facilities, maintaining food service areas, and managing food security and safety.
- Maintaining an incident Communications Plan and acquiring, setting up, issuing, maintaining, and accounting for communications and IT equipment.

- Providing medical services to incident personnel.

The on-call Chief Officer requested the Command Unit via Dispatch, notifying HRFE Logistics within 41 minutes of the incident call time. The HRFE on-call logistics division staff arrived on site the Sunday of the fires, bringing with them the Command Post (CP) vehicle and the heavy rehabilitation trailer; however, the Division Captain of Logistics was not notified. The main priority in those first 24 hours was setting those apparatus up and obtaining enough nutrients and hydration for those on-site. **It is recommended that HRFE review the notification and deployment model to ensure appropriate logistical support is integrated with alarm escalation.**



Photo credit: HRFE

On the afternoon of May 28, HRFE held their first meeting with supporting agencies on site to determine resources. Further DNR Resources (ICS leads, air support, and forestry firefighters) were on site the following morning. HRFE firefighters on scene those first 24 hours reported not having the wildfire-specific equipment required (i.e., not having gated-y parts or forestry hose). While HRFE did have a pallet of forestry hose in their logistics cache, this was requested and delivered the following day. **It is recommended that HRFE develop a standardized inventory for wildfire caches, and that during instances of any wildfire that are elevated to a third alarm or above, the wildfire cache is automatically delivered to the incident.** Firefighters also shared frustration in getting into a spare apparatus and realizing it needed to be equipped with the equipment required to attend to a fire. This became particularly challenging throughout the week when HRFE responded to the wildfires and another twelve structural fires in one day. **It is recommended that HRFE's spare apparatus be fully equipped with the same equipment as regular frontline operational apparatus.**



Photo credit: HRFE

During the wildfires, many individuals, community groups, and businesses wanted to provide logistics support however they could. During those first few days, when the weather was hot, this led to an influx of unanticipated donations to the site. Far more food than could be consumed was donated within the first 72 hours. This created additional tasks for the logistics team to determine where and how to donate the food and communicate via HRM's communication channels that food donations were not required. Well-meaning community organizers, businesses, and charities would bring food and drink to the Command Post throughout the event. Sometimes, shelf-stable products like water bottles or Gatorade could be distributed easily or even sent to support the wildfire efforts occurring concurrently in Shelburne. In other cases, the food being donated required immediate attention to ensure it remained refrigerated or stored correctly. Many more local and national businesses reached out to HRFE wanting to provide services or support, offering things anywhere from physiotherapy to front-line responders to heavy equipment to cleaning supplies. Administrative and logistics staff were inundated with well-meaning requests and needed to come up with ways to follow up, check with logistics for a need, and then respond to the offer. **It is recommended that standardized, pre-approved messages regarding logistics needs are developed so that messages can be released as needed.**

Given the centralized location of the logistics team at the ICP, logistics staff indicated that they often would provide basic scene orientation to mutual aid crews arriving after hours, in addition to their regular logistics duties. Throughout the event, the same core logistics team provided on-site food and equipment services nonstop, although career firefighter recruits, and additional volunteers were brought into support some of the equipment clean-up at the ICP. If the weather had not changed to favorable rainy conditions when it did, it is possible that a prolonged event over a longer period could have created health or staffing challenges for Logistics. **It is recommended the MERP take into consideration Logistics Division capacities to maintain the best possible response for essential and prolonged operations.**



Photo credit: HRFE

It was well understood by logistics staff that they could go to the appointed leads for information regarding the number of personnel on-site to feed or get assistance with sizing or clothing requirements for the weather changes. Still, members needed to be reminded that they should be liaising with these leads to discuss other on-site concerns they had or to voice their concerns about staffing burnout. **It is recommended that HRFE expedite the recruitment of the Logistics Division Chief (Manager) position.**

Some staff needed to be more consistent or aware of the reporting requirements for purchases during the event. After the event, it took considerable time for the HRFE IC to reconcile purchases. Credit card limits were not automatically increased as usual during a significant weather event for logistics. **It is recommended that a job aid for purchasing is created in collaboration with logistics, leadership, and administrative staff to use during prolonged events.**

Logistics division staff may benefit from a Food Unit Leader (FDUL) training course. This is a training course developed by an interagency group of experts from the United States Forest Service, the National Park Service, and Colorado State Forest Service. This training is a required course in the United States National Wildfire Coordinating Group (NWCG), wildland and prescribed fire curriculum. The training covers mobilization and arrival at a wildfire incident, establishing interagency working relationships, safety, and welfare of their assigned personnel, and the importance of the briefing by the logistics section chief and prescribed topics to be covered by this briefing. **It is recommended that Food Unit Leader (FDUL) training is considered as part of Logistics staff development.**

Throughout the week, Logistics staff report challenges ensuring adequate food and supplies. The predictions for daily food quantities were estimated a day prior. Then, arrangements were made to source the food orders for the following day. This day-to-day food supply management was sometimes problematic due to locating and confirming local retail suppliers. Similar challenges were reported with other non-food items that had to be sourced the same day, again with reliance on retail businesses. Logistics staff report that this process of just-in-time retail sourcing is the typical method used for resourcing supplies for incident response. **It is recommended that HRFE review how Logistics is prepared to provide supplies during**

incidents and develop a process that reduces or eliminates reliance on just-in-time retail purchases.

Emergency Fleet Services

Emergency Fleet services were instrumental in the fire response. The Fleet Services team provided reliable, consistent, responsive support to resolve mechanical issues. It kept apparatus and equipment functional during fire operations. Fleet Services provided on and offsite support and repairs during the wildfire incident, at times within smoke conditions and in fire-risk areas. **The effort and support by Fleet Services were strengths to be acknowledged.**

The Fleet Services team recounted challenges they encountered in providing essential onsite services. Fleet Services often experienced delays at road checks as field support vehicles were not equipped with emergency lighting; however, this has since been rectified. Due to the scale of the event, Fleet Services was challenged in maintaining ongoing support within existing staff resources. The resource challenges were compounded by ancillary service requests (i.e., fueling vehicles) that are best served by other non-specialized technicians, thereby reserving qualified mechanics for appropriately skilled tasks. While on the fire site, Fleet personnel felt disconnected from the fire incident command relating to accountability and safety. They often worked alone on equipment within the fire zone. They needed clarification on risk levels or if they were being monitored. Furthermore, they report needing knowledge of fire ground operations to understand structure and communications. **It is recommended that Fleet Services develop a work-alone policy. It is recommended that Fleet personnel be provided some basic training in fire ground operations, ICS 100, communication procedures, accountability, and safety.**



Photo credit: HRFE

The WUI wildfire operations were distributed over a large area and continued throughout the week, which placed significant demand on vehicles and equipment. Despite this excessive demand for vehicles, there was minor damage and minimal impact on fleet performance. Fleet Services reported a challenge in providing spare fire apparatus for surge staffing throughout the week as HRFE continued WUI wildfire operations and needing to ensure consistent staffing and

resources to the remainder of municipal stations to service the ongoing call demand. This challenge was related to a limited spare vehicle fleet and limited spare equipment required to equip a fire apparatus for deployment. This problem has been discussed in the past but became a very challenging issue with this incident. **It is recommended that Fleet Services research and evaluate a minimal spare fleet quota, inclusive of all ancillary and required equipment, to facilitate spare vehicle activation as a complete response-capable asset.** Furthermore, the spare fleet should be configured to ensure a core number of operational-ready vehicles are strategically located throughout the HRFE Districts, and an established number of reserve fleet that will be out of service to facilitate maintenance and repairs without compromising the front-line operational fleet or the operational-ready spare fleet. For reliability of service provision in high-consequence services such as HRFE, services have a defined size of spare fleet for redundancy and contingency of operations.

Furthermore, Fleet highlighted the limitation that the HRFE heavy fleet (for firefighting) is not designed for off-road travel, which was required in many situations during the WUI wildfire. HRFE does have a small number of 4x4 pickup trucks that have some capacity to carry equipment, but they are not firefighting apparatus. The lack of off-road apparatus (brush trucks) for firefighting capability limited the service provision and sometimes caused access/egress problems in non-standard access routes. It also created a problem with increasing the time to deploy hose lines and the workload of firefighters having to carry their equipment to remote locations. **HRFE should evaluate the need for a minimum capacity of off-road vehicles and brush truck capability within the fleet.**

Telecommunications and Technology

Telecommunications

Trunk Mobile Radio (TMR) and cellular communications were intermittent on May 28 due to high traffic volumes and two communication towers damaged by the wildfire. It would often take several attempts for members to reach each other by cellular or TMR Radio. The quality of calls was poor and communications was difficult. These challenges contributed to difficulty with personnel accountability.

Many members rely on an app called "I AM RESPONDING". During the wildfire, whenever a vehicle was paged to the scene it would notify all units that had at any point been tagged to that incident. Career operational personnel were recalled using the internal Everbridge notification system to all of C Platoon, which helped automate the initial response. During the initial response, visibility was at an all-time low, and some firefighters responded in unfamiliar neighborhoods. The neighborhoods contained cul-de-sacs and circular streets without straightforward entry and exit signage. Crews needed to "zoom in" on personal phone devices to get a map showing where they were and how the fire was spreading based on street names communicated on the radio. **It is recommended that HRFE and Information Technology (IT) consider a review of in-vehicle technology, cell phones, tablets, and crew accountability, including an investigation of MDT "freeze-ups", and seek opportunities to increase situational awareness.** Improvements for situational awareness can include such initiatives as mobile mapping, navigation assistance, locations and unit identifiers of other responders, and locations of incident sites such as ICP, forward bases, anchor points and muster/accountability locations.

The Division Chief of Technology and Innovation and the Communications Technician attended the fire early and they worked with Logistics to set up the Command Post (CP). Internet strength was insufficient; technology staff implemented a temporary solution using the HUSAR technology. A Starlink and hub have been purchased for the CP as a more permanent fix. Technology-wise, there was no easy way for people to connect their work or personal devices to the screen of the CP vehicle. **It is recommended that HRFE develop written procedures to guide the set-up of the CP at an incident site. Assigning overall responsibility and deployment of the CP to the Technology and Innovation Division rather than Logistics should be explored, as with major events, Logistics quickly becomes task saturated and the technology in the CP is becoming more complex.**

Two communication towers were damaged, and HRFE Technology staff worked with service providers to get the towers back up and running. **Mobile Communication Support (MCS) was provided through the Department of Service Nova Scotia – Public Safety Field Communication (PSFC) by attending the scene to assist HRFE.** MCS provides on-scene communications support for emergency incidents, technology deployment, and communications planning. MCS can be called upon at no cost to the user:

- When users experience or anticipate poor TMR signal interfering with the successful mitigation of an incident.
- At an incident where TMR users would need to communicate with agencies on other frequency bands.
- When TMR users are experiencing radio network issues.

Despite a member of the MCS Team always being on call and accessible via Shubie Radio, MCS was invited on scene informally via HRFE technology support staff. They brought their Mobile Communications Field Truck to provide extra communications support. MCS was able to arrive fairly promptly to provide support. **It is recommended that HRFE leadership, senior officers, as well as Logistics and IES staff be versed in MCS abilities so that bringing in MCS becomes part of the standard operating procedure at any significant wide-scale incident where TMR and cellular communications are strained.**



Photo credit: HRFE

Integrated Emergency Services

Halifax Regional Police (HRP) – IES provides HRFE with fire dispatch and communications services, including 911 emergency calls for fire department assistance that originate in HRM, which IES receives and processes. Fire Dispatch uses the provided CAD system to initiate incident reporting and dispatch the call to the required fire station(s) in the HRM. During an event as long as the Upper Tantallon wildfires and given that this was not a regular structural fire, some of the above-noted everyday processes were impacted. **A senior fire officer (Deputy Chief) reported to IES Dispatch to assist with the deluge of calls during the initial response. During their focus group, the IES staff identified this as a strength to sustain.**

During one of the first joint media briefings with HRFE, DNRR, and RCMP, members of the public were told to call 911 to report animals trapped in homes in the impacted area. It was thought these calls would be triaged to RCMP as they were leading the evacuation; however, they were routed to the HRFE IES dispatchers, who were already inundated with calls. **It is recommended that HRFE, HRP IES, and RCMP determine which calls during a joint event are routed to each respective agency.**

Due to the high number of staff on-site, Captains and Division/District Chiefs reminded crews to keep radio communication to a minimum to keep air space available for messages that needed to be passed along. When several agencies responded, IES Fire dispatch created radio patches so that multiple channels could communicate with each other. During the first 24 hours of the event, the Provincial MCS and IES staff were initially creating patches so that DNRR, HRFE, and the various mutual aid agencies could communicate. In this instance, the patches were using up the two repeaters in one tower, so DNRR was discontinuing the patches. Because this was a new situation, IES staff restored the patches. **It is recommended that additional training be constructed for HRFE and IES to take advantage of preexisting mutual aid channels that can be used without patches having to be created. It is recommended that for future operations that the operating radio channel be switched to a mutual aid channel when interagency operations are established at any incident.**

For an accurate record of events, IES ensures that all recording/logging equipment (i.e., CAD, paging/notification logs, and telephone/radio recordings) are referenced to a global positioning system (GPS)-synchronized network time protocol (NTP) time server. This was not strictly followed in this instance. Each day, a fire volunteer (with IES dispatch experience) would listen to the radio channels, create their log notes, and meet with HRFE's lead to discuss any issues. This worked well for both the Fire and DNRR IC; however, it relied too much on a specific skill set of one HRFE volunteer and should not be considered best practice moving forward. **It is recommended that the IES governance committee consider developing a policy that in the event of a large-scale incident a dispatcher be dedicated to the incident in dispatch.** Additional staff should be brought in as emergency staffing to backfill that dedicated position. This dedicated position out of IES would ensure all monitoring and logging is done accurately.



Photo credit: HRFE

Geographic Information

Given the extensive amount of damage resulting from the fire and the inability of residents to enter the evacuated zone to assess their properties, it was immediately apparent that HRM would face a significant challenge. How could the municipality assess the condition of hundreds of properties, record the impact of the fire for each of these, store the information securely and share the information in a timely and sensitive way with the property owners and residents?

By the morning of May 29th, Esri Canada's Halifax team had reached out and engaged with HRM's IT Lead to provide HRM access through Esri's Disaster Response Program (DRP). HRM's IT Director of Data Analytics and Visualization coordinated with HRFE's Division Chief of Technology to use Esri's data layers and program to be able to accurately record property damage.

By Tuesday, May 30th, after doing testing on site, it was determined that this was a viable solution, and HRFE's technology staff worked with HRM's IT department to purchase 26 iPads from Bell Canada. HRFE technology staff set up and tested the devices and then trained HRFE members to use them. HRFE used the devices to document damage to homes in the affected areas.

Undamaged structures were noted with a photograph of the front side of the structure. Damaged and destroyed structures then had photographs taken of all four sides. This gave the IC, EOC, and HRM senior staff the situational awareness required to determine the next steps. The information was also used to assist with fencing, rapid property investigations, and public release of information.

On June 1, HRM IT sought support for building an app to share data from damage assessment inspections more widely. To accomplish this, Esri moved the HRM ArcGIS Online organization to an M1 Data Store and worked with HRM IT to create a mobile-friendly app using the ArcGIS Experience Builder. By June 2, HRM staff were able to use the app for sharing damage assessment information with impacted residents.

The familiarity and use of GIS by both HRFE's Technology and Innovation team and HRM's IT team meant that they were able to quickly understand what was feasible and required to make the most of Esri Canada's technology. **The prompt and proactive support of both Esri Canada and the HRM IT Data Analytics and Visualization team is a strength to sustain.**

As a reference to the sheer size of the area impacted, the following picture is a graphic representation of the Upper Tantallon WUI wildfire superimposed over the downtown core of the Halifax peninsula:

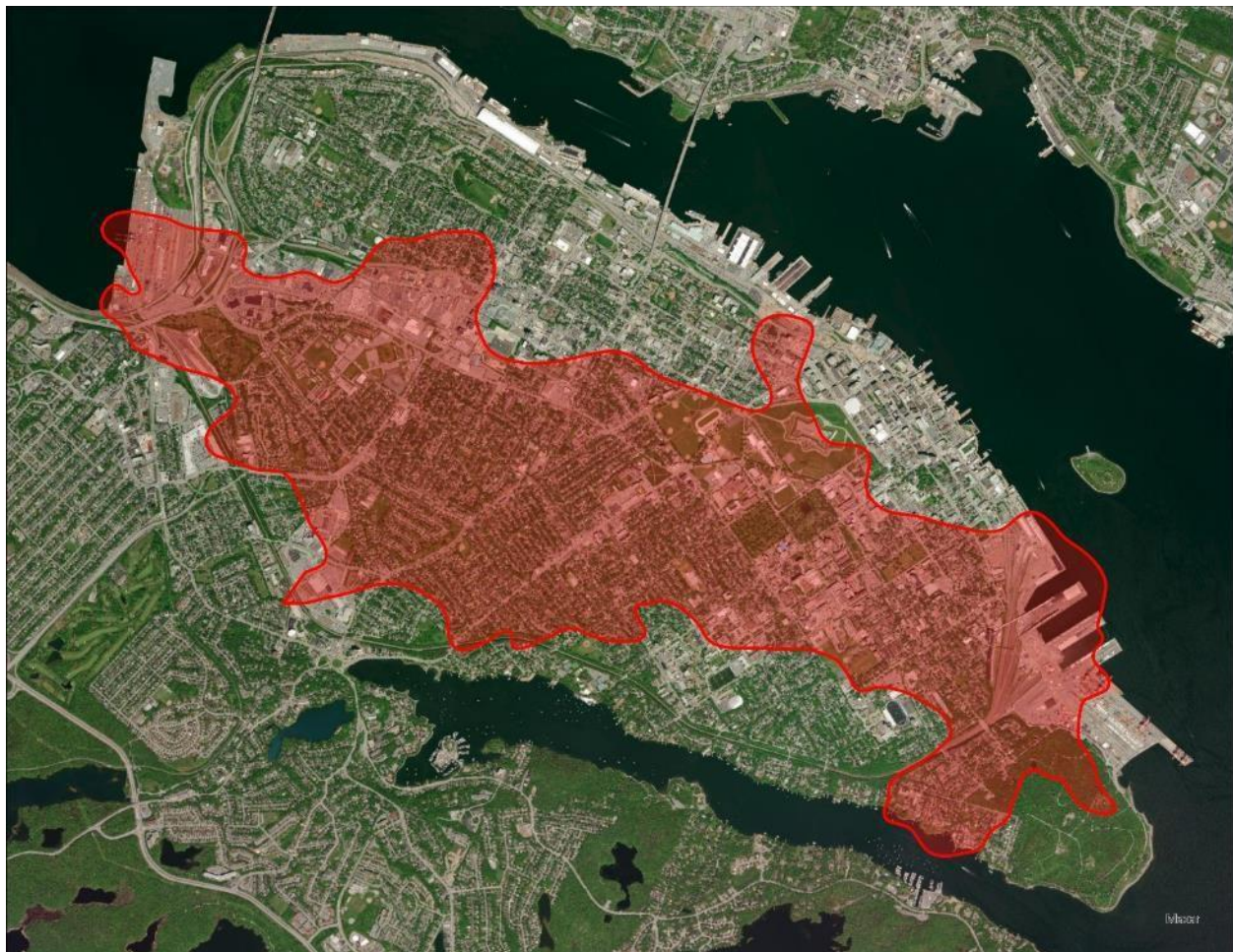


Photo credit: HRFE

Emergency Public Information

The rapidly evolving situation during the May WUI wildfire, combined with the many residents evacuated, demanded consistent, accurate, and timely communications to the public. **The coordinated and cooperative effort between the RCMP, HRFE, and DNRR to deliver media briefings was a strength to be sustained.** The media availability sessions at the ICP were effective. Anecdotal feedback from residents and local media organizations suggested the sessions were important for their ability to understand the emergency, the efforts being made to respond to it, and to predict how the event would impact them and their families. **There was a challenge experienced between the ICP and the HRM EOC regarding a need for more**

clarity around the timing and release of information and a lack of onsite support from HRM Corporate Communications, which highlights an area for improvement. For example, HRFE recommended all site briefings be live-casted to provide the most significant distribution of information, however, neither HRFE nor HRM had the ability and resources to do this. **The inability to control and deliver information by live cast was an opportunity for improvement. It is recommended that Corporate Communications develop a robust site communication plan and ensure personnel are educated and prepared to enact the plan.**

HRFE is supported by HRM Corporate Communications through several HRM Media Advisors who aid HRFE when they can, subject to their availability and workload. These advisors do not have the technical knowledge or understanding of HRFE or of fire and rescue operations to serve as an Emergency Public Information Officer for HRFE. **The structure for HRFE communications support was reported as being insufficient to meet the needs of this event and is an area for improvement.** Dedicated professional communications personnel are valuable resources that can assist with timely crisis communications, such as those experienced during the May WUI wildfire, provide guidance and advice to fire officers performing the role of public information officer, and assist with communication strategies, such as social media to ensure residents are informed and engaged on the essential public safety work of HRFE. As a public safety agency, HRFE operates with many other public safety agencies and specialty services. These agencies use similar terminology and during high-consequence events it is essential to have a unified message with specialized communications personnel. HRFE was the only agency who did not have a public education officer and had to task a senior officer who had the skill to do this important work. **It is recommended that HRFE is supported by dedicated professional communications personnel which is under full authority of HRFE for assignment, direction, and accountability.**



Photo credit: CBC News (May 31, 2023)

A possible solution could be the establishment of a full-time dedicated professional communication position within HRFE to create a Public Information Officer type position. To further bolster HRFE communications support, assignments can be arranged with HRM Corporate Communications to have personnel rotate between HRFE and HRM Corporate Communications for six months to one year at a time. This timeframe would provide enough time for the individual to become knowledgeable and competent in the HRFE organizational

functions, services, and systems. A rotation back to HRM Corporate Communications to then have a new individual assigned to HRFE will facilitate building contingency and redundancy of communications support to HRFE. This would improve HRFE organizational knowledge with the HRM Corporate Communications processes and depth for on-call after-hours support.

Fire Investigation

DNRR is the agency with jurisdiction, and their Forest Protection Staff completed the Wildfire Cause and Origin Report, which was referred to the Department's Conservation Officer Service. DNRR's Conservation Officers' have authority to lay charges for wildfires in accordance with the Forests Act. Any criminal charges would be the responsibility of the police. **It is recommended that during ongoing wildfires, clarification on agency responsibility regarding legal authority and process is provided to media and internal staff, such as 311 and public information officers.** DNRR Fire Prevention officers requested HRFE to assist with the origin and cause investigation for the wildland fire. In addition, HRFE was responsible for investigating each structure fire to ensure that those that were majorly damaged or destroyed were caused by the wildfire and that there was no loss of life.

On June 2, HRFE's Fire Chief as an Assistant to the Fire Marshal set up a Building Investigation and Release Section under the Upper Tantallon Incident Command System. **The Building Investigation and Release Section was provided clear purpose and direction from the Fire Chief which was identified as a strength to sustain.** The purpose was twofold. First, to ensure that HRFE fulfilled their legislated responsibility related to fire investigations, determine the origin and cause, and determine if occupants were injured or died because of the fire. Secondly, to assess all buildings that were impacted by the fire, to not only conduct a fire investigation on all buildings destroyed or significantly damaged, but also to inspect areas with minorly or moderately damaged buildings and render the areas safe in preparation for releasing the buildings back to the property owners/insurance companies as part of the reopening plan once the evacuation order was retracted.

The Building Investigation and Release Section was comprised of a Section Chief who was the Division Chief of Fire Prevention, an Assistant to the Fire Marshal, an Office of the Fire Marshal Deputy Fire Marshal and Fire Investigator, the Vice President of the Atlantic Region of the Insurance Bureau of Canada, HRM's Manager of Building Standards, along with HRFE and OFM Investigators and Fire Prevention Officers and Building Inspectors. Despite not having a standard operating guide or policy developed for this specific volume of structures destroyed by one fire, the Building Investigation and Release Section worked promptly and tirelessly to determine best practices for investigating and securing properties to be provided back to the homeowner. **The effort and efficacy demonstrated by the performance of the Building Investigation and Release Section was admirable.**



Photo credit: HRFE

The Building Investigation and Release Section recommended to the EOC, that once buildings were either inspected by a building/fire inspector for minor damage or investigated by a Fire Prevention Officer/Investigator for those that were majorly damaged or destroyed, that the rest of the process to render the site safe and secure should be managed by the EOC before transitioning the building to the owner/insurance company. However, this did not happen as quickly as was anticipated and the members of the Building Investigation and Release Team quickly pivoted from investigations to ensuring that each property was securely fenced off. In total, 166 properties required fencing. This was a task that, in the future, should be started sooner, and work should be assigned to a logistics lead at the EOC or HRFE.

HRD Dogs from multiple jurisdictions were brought in to assess the affected area to confirm there were no fatalities. Prioritization was based on properties that had not been registered with 311 by homeowners or residents, then to investigate properties, followed by progression of the fencing operation. **This is a best practice and should be highlighted as a strength to sustain through operational guidance.** Ideally, the HRD dog handlers would have been organized as soon as the level of structure loss was known. The weather on the days the dogs were called out (rainy, windy) could have been better. Multiple fire crews and fire investigators had walked through the properties. Fortunately, no human remains were detected, and the Provincial Medical Examiner's Office was available and assisted with the site clearance. Although **HRFE has a HUSAR team with canine search capabilities, they had not established contacts or institutional knowledge of what the HRD Dogs or their handlers required; it is recommended that the contacts made during this event are maintained.**

The Building Investigation and Release Section and HRFE investigation team was tasked with conducting 174 structure investigations as quickly as possible, which took about two weeks to complete. HRFE's regular fire investigation process was not applicable, as in this instance,

investigators were there to determine if the cause of the structure fire was due to the wildfire and if there was an injury or fire death. While on site specific PPE plans were implemented. **It is recommended that the Fire Prevention Division develop written health and safety procedures for fire investigators to follow when conducting rapid Cause and Origin Investigations, including the HRD Dog component at a WUI wildfire incident.**

A system of investigations was developed where inspections were prioritized so that buildings, where owners had not yet registered with 311, were completed first, followed by a strategic deployment to the remaining buildings to minimize fire scene security requirements for the buildings that have not been investigated when evacuations were lifted. Investigators were provided light fleet vehicles and instructions on what to record and give back to the team. Members at the command post would subsequently upload information as it was returned.

Investigators contacted and met with home and business owners who were displaced throughout HRM, and, in most cases, they were the first uniformed representatives of HRFE that they had met with one-on-one. Tracking down and meeting with each family, all of whom were experiencing ongoing trauma, was sensitive and challenging work. **It is recommended in the future that HRFE's FFAP team services be offered to the investigators both before and after an incident.** Investigators had limited information available to them that could be shared with homeowners, making this an additionally upsetting conversation for homeowners. Questions were understandably asked about when they could return to their property, how they should address potential hazards in their home, or who they could speak to for more help. Information that HRM EOC or 311 staff were providing to homeowners either during the fires or the HRM Recovery Phase of the event was not provided to the investigators, so they were not always aligned or on the same page as other trauma informed approaches were being used and what resources were available to those affected. **It is recommended that in future events where there is widescale structure loss, investigation staff are provided as much information as possible to share with homeowners.**

Summary of Findings

This section provides a consolidated list of the Findings categorized by each identified theme. The summary list is comprised of twenty-four Best Practices, which are strengths to sustain, and fifty-six Opportunities for Improvement.

Best Practices

1. Major Event Response
 - a. Major Event Response Plan
 - i. The rapidity of alarm escalation and the self-dispatch undertaken by many were strengths to be highlighted as they demonstrated a level of situational awareness, the need for resources, and the strength of the human capital within HRFE.
 - ii. Recall of operational front-line personnel was conducted using the internal Everbridge notification system. The Everbridge system was noted to have been a benefit.
 - b. Incident Command System

Wildland Urban Interface Wildfire: May 2023

- i. ICS was implemented during the May WUI wildfire event.
 - ii. A strength of the May WUI wildfire information flow process was that each day at the Incident Command Post (ICP) in Upper Tantallon, an all-agency briefing was conducted, and IAPs were distributed.
2. Evacuation
 - a. The quick initiation of evacuation, which ultimately avoided any loss of human life.
3. Safety
 - a. Despite the hazardous conditions, there was no loss of life and no significant injuries to residents or responders, which is a substantial outcome that needs to be acknowledged.
 - b. The firefighter rehabilitation and support initiatives implemented during the WUI wildfire were a strength of the safety plan.
 - c. The onsite support of EPSO paramedics was a strength of the interagency operation.
 - d. Despite the dangers present, there was no significant injury and no life lost, which is a strength of the response to highlight.
 - e. The actions supporting the onsite responder's mental health were a strength to be commended.
4. Wildland Urban Interface Wildfire
 - a. HRFE is a FireSmart partner and was one of the first municipal departments in eastern Canada to implement the FireSmart training program in early 2023. HRFE's efforts with FireSmart should continue to be supported to mitigate the risk in the WUI.
5. Firefighting
 - a. The number of firefighters who answered the call to serve each day and the high effort expended are strengths to be recognized.
6. Water Supply
 - a. The fire suppression operations and tactical use of available water sources were a strength of the fire response.
7. Mutual Aid
 - a. The mutual aid departments' willingness, equipment, and skills contributed significantly to battling the wildfires.
 - b. With the magnitude of damage and the large number of buildings requiring investigation, the aid from the OFM Investigators, the HRD dogs, and their handlers was invaluable.
8. Logistics
 - a. The vital work of HRFE's Logistics Division staff was highlighted as a strength for the demonstrated effort, support, and commitment.

9. Emergency Fleet Services
 - a. The effort and support by Fleet Services were strengths to be acknowledged.
10. Telecommunications and Technology
 - a. Telecommunications
 - i. Mobile Communication Support (MCS) was provided through the Department of Service Nova Scotia – Public Safety Field Communication (PSFC) by attending the scene to assist HRFE.
 - b. Integrated Emergency Services
 - i. A senior fire officer (Deputy Chief) reported to IES Dispatch to assist with the deluge of calls during the initial response. During their focus group, the IES staff identified this as a strength to sustain.
 - c. Geographic Information
 - i. The prompt and proactive support of both Esri Canada and the HRM IT Data Analytics and Visualization team is a strength to sustain.
11. Emergency Public Information
 - a. The coordinated and cooperative effort between the RCMP, HRFE, and DNRR to deliver media briefings was a strength to be sustained.
12. Fire Investigation
 - a. The Building Investigation and Release Section was provided clear purpose and direction from the Fire Chief which was identified as a strength to sustain.
 - b. The effort and efficacy demonstrated by the performance of the Building Investigation and Release Section was admirable.
 - c. HRD Dogs from multiple jurisdictions were brought in to assess the affected area to confirm no fatalities on site.

Opportunities for Improvement

1. Major Event Response
 - a. Major Event Response Plan
 - i. The level of self-dispatch reflects an opportunity for improvement, as there was a lack of clarity regarding the expected response.
 - ii. Develop a major event response plan (MERP) for HRFE operations.
 - iii. There is a need to ensure all organizational personnel receive notifications and directions during a major event response.
 - iv. To facilitate the timely completion of a MERP, it is suggested this work is supported by a duly qualified subject matter expert with the available time and appropriate resources. A MERP should be prepared and then supported by mandatory training for all HRFE personnel.
 - v. As the work needed for both the MERP and BCP will be closely linked, it is advisable to capitalize on the MERP project and complete an updated HRFE BCP at the same time.
 - b. Incident Command System

- i. ICS was implemented during the May WUI wildfire event and presented an area for improvement.
 - ii. It is recommended that HRFE review and implement practical methods to enhance the understanding and application of incident command guidelines during higher-class incident types.
 - iii. An area for improvement should be to work to increase information flow between the Ops section chief for the IMT and frontline members.
 - iv. HRM Emergency Management Committee develop a process for improved communication during significant events.
 - v. HRFE continue to collaborate with other emergency response agencies for regular interagency exercises, including field/practical exercises.
2. Evacuation
 - a. The procedure and authority for issuing public alerts was identified as an area for improvement.
 - b. HRFE collaborate with HRM Community Safety, Provincial EMO, DNRR, and police agencies to streamline the procedures for public alerting and clarify authority for instituting and sustaining evacuation.
 - c. HRFE collaborate with community partners to ensure a holistic approach to evacuations and build a mutual understanding of legal accountabilities.
3. Accountability
 - a. Accountability is an area for improvement, and it is recommended that HRFE prioritize work on an accountability project with IT.
4. Safety
 - a. HRFE prioritize the establishment of the wildland protective clothing and equipment working group to determine wildland PPE requirements and develop guidelines for the selection, use, and maintenance of wildland protective clothing and equipment.
 - b. HRFE revise Operating Guideline 4060 to include a comprehensive firefighter medical rehab and wellness directive, including education to firefighters regarding foot care while on extended operations.
 - c. HRFE review environmental safety concerns to ensure guidelines and appropriate processes are developed for future incidents.
 - d. HRFE review and revise the FFAP program education to ensure delivery and accessibility to personnel who may not be directly engaged with onsite operations.
5. Wildland Urban Interface Wildfire
 - a. HRFE update the existing draft WUI strategy.
 - b. The newly established HRFE Wildfire Mitigation Program Manager prioritizes the implementation of the updated WUI strategy.
6. Firefighting

- a. It is recommended that HRFE use the information in the alarm levels training package/CAD programming to develop an operating guideline for alarm levels in the “hydrant” and “non-hydrant” areas to include procedures for escalation and de-escalation.
7. Water Supply
 - a. HRFE consolidate and formalize the documents that detail dry hydrant/cistern design, construction, maintenance, and testing requirements.
 - b. HRFE management continue to communicate with HRM Planning and Development management regarding involvement in reviewing all subdivision applications.
 8. Mutual Aid
 - a. How each municipal fire department was deployed needs to be clarified for future operations.
 - b. It is recommended that there is further internal communication with HRFE members throughout the event to provide insight and information into staffing during prolonged incidents.
 9. Logistics
 - a. HRFE review the notification and deployment model to ensure appropriate logistical support is integrated with alarm escalation.
 - b. HRFE develop a standardized inventory for wildfire caches, and that during instances of any wildfire that are elevated to a third alarm or above, the wildfire cache is automatically delivered to the incident.
 - c. HRFE's spare apparatus be fully equipped with the same equipment as regular frontline operational apparatus.
 - d. Standardized, pre-approved messages regarding logistics needs are developed so that messages can be released as needed.
 - e. The MERP take into consideration Logistics Division capacities to maintain the best possible response for essential and prolonged operations.
 - f. HRFE expedite the recruitment of the Logistics Division Chief (Manager) position.
 - g. Create a job aid for purchasing in collaboration with logistics, leadership, and administrative staff to use during prolonged events.
 - h. Food Unit Leader (FDUL) training is considered as part of Logistics staff development.
 - i. HRFE review how Logistics is prepared to provide supplies during incidents and develop a process that reduces or eliminates reliance on just-in-time retail purchases.
 10. Emergency Fleet Services
 - a. Fleet Services develop a work-alone policy.
 - b. Fleet personnel be provided some basic training in fire ground operations, ICS 100, communication procedures, accountability, and safety.

- c. Fleet Services research and evaluate a minimal spare fleet quota, inclusive of all ancillary and required equipment, to facilitate spare vehicle activation as a complete response-capable asset.
- d. HRFE should evaluate the need for a minimum capacity of off-road vehicles and brush truck capability within the fleet.

11. Telecommunications and Technology

- a. Telecommunications
 - i. HRFE and Information Technology (IT) consider a review of in-vehicle technology, cell phones, tablets, and crew accountability, including an investigation of MDT "freeze-ups", and seek opportunities to increase situational awareness.
 - ii. HRFE develop written procedures to guide the set-up of the CP at an incident site.
 - iii. Assigning overall responsibility and deployment of the CP to the Technology and Innovation Division rather than Logistics should be explored, as with major events, Logistics quickly becomes task saturated and the technology in the CP is becoming more complex.
 - iv. HRFE leadership, senior officers, as well as Logistics and IES staff be versed in MCS abilities so that bringing in MCS becomes part of the standard operating procedure at any significant wide-scale incident where TMR and cellular communications are strained.
- b. Integrated Emergency Services
 - i. HRFE, HRP IES, and RCMP determine which calls during a joint event are routed to each respective agency.
 - ii. Additional training be constructed for HRFE and IES to take advantage of preexisting mutual aid channels that can be used without patches having to be created.
 - iii. For future operations, the operating radio channel be switched to a mutual aid channel when interagency operations are established at any incident.
 - iv. The IES governance committee consider developing a policy that in the event of a large-scale incident a dispatcher be dedicated to the incident in dispatch.

12. Emergency Public Information

- a. There was a challenge experienced between the ICP and the HRM EOC regarding a need for more clarity around the timing and release of information and a lack of onsite support from HRM Corporate Communications, which highlights an area for improvement.
- b. The inability to control and delivery information by live cast was an opportunity for improvement.
- c. Corporate Communications develop a robust site communication plan and ensure personnel are educated and prepared to enact the plan.
- d. The structure for HRFE communications support was reported as being insufficient to meet the needs of this event and is an area for improvement.

- e. HRFE is supported by dedicated professional communications personnel which is under full authority of HRFE for assignment, direction, and accountability.

13. Fire Investigation

- a. During ongoing wildfires, clarification on agency responsibility regarding legal authority and process is provided with the media and internal staff, such as 311 and public information officers.
- b. HRFE has a HUSAR team with canine search teams, however they had not established contacts or institutional knowledge of what the HRD Dogs or their handlers required; it is recommended that the contacts made during this event are maintained.
- c. The Fire Prevention Division develop written health and safety procedures for fire investigators to follow when conducting rapid Cause and Origin Investigations, including the HRD Dog component at a WUI event.
- d. HRFE's FFAP team services be offered to the investigators both before and after an incident.
- e. in future events where there is widescale structure loss, investigation staff are provided as much information as possible to share with homeowners.

Conclusion

HRFE and all allied response agencies and supporting organizations expended tremendous effort in response to the May 2023 WUI wildfire. There was apparent genuine concern for the community's well-being and the residents, as demonstrated by fellow Haligonians, other Nova Scotians, and Canadians from across the Country. Day after day, in often extreme conditions, personnel came to serve, support, and save the community. Numerous offers for help were received from far and wide. The May 2023 WUI wildfire was a destructive event that can be used to learn and improve.

The HRFE PIA process was a deep analysis of HRFE's emergency response operations. The performance of a PIA is a best practice and demonstrates a commitment to an organizational learning approach to improvement. With any event, especially during extreme circumstances, there are always lessons that can be learned from retrospective reviews that can be used to improve future response operations. These lessons can encompass successes of the response that are strengths to sustain and opportunities for improving future response operations. This PIA provides a direction for further improvement and strengthening of HRFE capacity and, broadly, for HRM. Proactive measures are known to be more effective and more efficient than reactive measures. To this end, HRFE will incorporate the learnings from this PIA into business and budget planning processes for future capacity building; indeed, HRFE has already made strides in several areas.

The May 2023 WUI wildfire was a historic event for HRM. A community was disturbed, lives were disrupted, and homes were destroyed. 2023 was a record year for wildfires in Nova Scotia and much of Canada. Trends and predictions of climate change coupled with population growth and distribution indicate an elevated risk for such disasters. The risks of these hazards can be managed with the collective effort of individuals, communities, and the public service to identify

vulnerabilities and implement effective prevention, planning, and preparedness strategies. These cooperative efforts can help reduce the impacts, improve response, and facilitate speedy recovery from future disasters. Ultimately, this is about people serving people for the greater good: the people impacted, people who serve – sometimes those affected are also those who serve – and people committing to preventing, preparing, responding, and recovering together.



Photo credit: Communications Nova Scotia

Appendix A: HRFE PIA Policy

HALIFAX REGIONAL FIRE & EMERGENCY

P o l i c y M a n u a l

Subject:	POST INCIDENT ANALYSIS	Policy No. P-410
Division:	OPERATIONS	Page 63 of 4
Issued By:	OPERATIONS SUPPORT (B. Gray)	Date of Issue: 1997/09/03
Approved By:	Doug Trussler, Chief Director	Revision Date: 1999/11/03; 2001/11/29; 2012/05/08
Forms Required:		
File Information:		

PURPOSE:

This policy defines the requirement to perform a Post Incident Analysis (PIA) after structure fires and other significant emergency responses.

SCOPE:

This policy applies to career and volunteer members of Halifax Regional Fire & Emergency (HRFE).

OBJECTIVE:

To ensure the review of actions taken during an incident by HRFE members and therefore increase the safety and security of those at the next incident.

DEFINITIONS:

- **“Post Incident Analysis”**- a review of actions taken to mitigate an emergency whose purpose is to determine if specific changes in training, equipment, or procedures should be recommended to make future responses safer and more effective.
- **“Informal Analysis”**- a quick verbal review (tail board critique) of an emergency operation, either on scene or back in the station, within “24 hours”.

- **“Formal Analysis”**- a facilitated analysis of an emergency response which is held within ten days of the event. Firefighters gather in a common meeting location, and the results are written in a report.

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- **“Paper Based Analysis”**- an analysis of an emergency response which is conducted more than a week after the event and when firefighters do not meet in a common meeting location. In a paper based analysis, the Incident Commander (IC) and other officers who had relevant command responsibilities at the emergency, gather feedback from their crews, and forward their remarks to a Chief Officer designated to produce an overall analysis of the response. A paper based analysis is appropriate when the number of responders, the duration of the event, or other factors make it impractical to conduct a PIA meeting.

POLICY:

Post Incident Analysis (PIA) is a required activity. The PIA shall be used to identify and promote successful emergency response practices; to identify and recommend improvements in training, equipment or procedures whenever possible.

The PIA promotes continuous improvement. All PIA activities must be conducted in a way that permits members to identify system strengths and areas for possible be conducted for discipline.

Officers are responsible to ensure that a PIA is conducted after every significant emergency response. This includes (but is not limited to) working fires beyond the incipient stage, motor vehicle collisions requiring extrication, dangerous goods team deployments, technical rescues and mass casualty incidents.

Informal Analysis

Company officers are responsible to ensure that they lead an informal analysis after responses where 15 crews did the work. The IC must ensure that officers and crews from those working companies review and discuss the incident. This can be done at the scene or at the station shortly after the call. Notes are not required, but lessons learned should be shared freely. The IC is responsible to pass any requests or recommendations that come out of the PIA up the chain of command.

Formal Analysis

Chief Officers are responsible to ensure that a formal analysis is conducted when:

- More than 5 crews were required to mitigate the emergency;

Post Incident Analysis May 2023: Wildland Urban Interface Fire

- The scene was complex or of a long duration;
- There was significant safety or operational concerns expressed by members operating at the scene; or
- The IC determines there is value in a formal analysis.

The IC shall request the services of a facilitator, arrange a meeting time and location for crews, attend the PIA session and support the PIA process.

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Facilitators shall be trained for this task. The qualifications required and list of facilitators shall be determined by the Divisional Chief of Training. Facilitators may be officers from within the Training Division or Operations Division.

The facilitator shall ensure that they are familiar with the incident. If some of the responders are not able to be present at the PIA meeting, the facilitator should request information from them through a personal meeting, telephone, or in writing.

The facilitator shall facilitate the PIA meeting and prepare a written report outlining observations and recommendations made by on-scene personnel. The facilitator will give the IC an opportunity to review the draft report to check for errors or omissions. The facilitator will distribute finished copies of the report to:

- Deputy Chief, Operations
- Deputy Chief, Operations Support
- Assistant Deputy Chief of Operations
- Divisional Chief of Safety
- Divisional Chief of Training
- Joint Occupational Health & Safety Committee; and
- Any other party requiring a copy of the report in order to improve operational effectiveness or safety.

Paper/Online Based Analysis

When the number of responders or other factors makes it impractical to conduct a PIA meeting, the Deputy Chief of Operations shall designate a Chief Officer to facilitate a paper or online based analysis. The facilitator shall identify the Command and Support Officers who were involved in the incident. The facilitator will send those Officers a questionnaire to be completed and returned by a specified deadline. The facilitator will prepare and distribute a written report as outlined above in “Formal Analysis”.

Distribution of Information

The Deputy Chief of Operations shall ensure that the final report arising from post incident analysis is distributed as widely and freely as possible. Distribution of the report shall be done with the following considerations:

- The report shall not identify individuals, and
- The report will be distributed so that as many firefighters as possible can learn from the report.

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RELATED POLICIES & OPERATING GUIDELINES:

- P-410A

POLICY REVIEW:

This policy shall be reviewed when/if there are changes/amendments to the methods of analysis used to review incidents.

Appendix B: PIA Stakeholder List

Interviews and focus groups were held with the following stakeholders:

- Halifax Regional Fire & Emergency: volunteer and career members, the Office of the Fire Chief, Operations Division, Fire Prevention Division, Safety Division, and Logistics Division as well as the IAFF Local 268 Executive.
- Halifax Regional Municipality: Community Safety (including Emergency Management Office), Property, Fleet and Environment - Emergency Fleet staff and Halifax Regional Police - Integrated Emergency Services.
- Nova Scotia Department of Natural Resources
- Service Nova Scotia
- Royal Canadian Mounted Police
- Emergency Health Services (EHS)
- Emergency Medical Care Inc (EMCI)

Surveys were sent to the following stakeholders:

- Halifax Regional Fire & Emergency (all career and volunteer members)
- New Brunswick Coroner's Office
- Nova Scotia Department of Natural Resources
- Nova Scotia Emergency Management Office
- Service Nova Scotia
- Halifax Search and Rescue
- Nova Scotia Search and Rescue
- Nova Scotia SPCA
- London PEI Fire
- Truro Fire
- Chester Fire
- Enfield Fire
- Elmsdale Fire
- Lantz Fire
- Department of National Defense
- Emergency Health Services (EHS)
- Emergency Medical Care Inc (EMCI)
- Cape Breton Regional Municipality Fire Services
- Mount Uniacke Fire

Appendix C: Data Gathering Ground Rules

1. The goal is to guide and improve the work of future project teams.
2. The PIA does not grade success or failure.
3. There are always weaknesses to improve and strengths to sustain.
4. You are asked to share honest observations about what actually happened (objective data) without assigning blame or praise.
5. No one has all the information or answers.

Appendix D: Survey Questions

HRFE Firefighter Survey

Opening remarks:

HRFE is conducting a Post Incident Analysis (PIA) of the Tantallon wildfire. The PIA aims to guide and improve future operations and responses by identifying areas for improvements and strengths to sustain. This survey is designed for you to provide your feedback on several areas including safety, logistics, training, and communication. You will see there is also an option for you to provide narrative at the end to highlight anything else you'd like to share.

Themes from the narrative text will be included in the PIA but no one will be individually named or identified with any of the information from this survey in the PIA.

We recognize that anonymity is an important option for providing feedback. You are also welcome to provide anonymous written feedback via interoffice mail to the attention of the PIA leads who are located at 3rd floor, 40 Alderney Drive.

Survey emailed to all career and volunteer members (approximately 1,000 individuals)

91 respondents

No	Type	Questions	Answers
1	Multiple Choice	Please indicate the dates you attended the Tantallon wildfires	Sunday May 28th or within the first 24 hours of the incident At least one date within the Response Phase May 29 - June 6 At least one date within the Demobilization Phase June 7 - 8
2	Multiple Choice	ONLY if you attended the Tantallon wildfires on Sunday, May 28 (or during the first 24 hours of the incident), please indicate your level of agreement with this statement: "The operational objectives and/or tasks I was assigned during the first 24 hours of the incident were communicated to me".	Extremely true Somewhat true Slightly true Not true at all
3	Multiple Choice	If you attended the Tantallon wildfires during the response phase or demobilization phase, please indicate your level of agreement with this statement:	Extremely true Somewhat true Slightly true

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No	Type	Questions	Answers
		"The operational objectives and/or tasks for my shift were clearly communicated".	Not true at all
4	Multiple Choice	<p>ONLY if you attended the Tantallon wildfires during the first 24 hours of the incident, please indicate your level of agreement with this statement:</p> <p>"I was familiar with the incident-specific risks and hazards that could be on scene and not yet identified, at the start of an emerging/out of control Wildland Urban Interface fire".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
5	Multiple Choice	<p>If you attended the Tantallon wildfires during the response phase or demobilization phase, please indicate your level of agreement with this statement:</p> <p>"I had access to sufficient personal protective equipment (PPE) to perform my duties during the incident and felt comfortable requesting or communicating what I needed if I did not already have what I needed".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
6	Multiple Choice	<p>If you attended the Tantallon wildfires during the response phase or demobilization phase, please indicate your level of agreement with this statement:</p> <p>"I was familiar with the incident-specific risks and hazards that could be associated with this incident during these phases".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
7	Multiple Choice	<p>If you attended the Tantallon wildfires during the response phase or demobilization phase, please indicate your level of agreement with this statement:</p> <p>"I received an adequate amount of training from HRFE prior to this incident, to perform the tasks I was assigned during this time".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
8	Multiple Choice	<p>If you attended the Tantallon wildfires during the response phase or demobilization phase, please indicate your level of agreement with this statement:</p> <p>"During the course of the event, I felt HRFE welcomed and acted on any concerns raised regarding on site safety".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
9	Multiple Choice	<p>If you attended the Tantallon wildfires during the first 24 hours, please indicate your level of agreement with this statement:</p> <p>"During the first 24 hours, I felt HRFE welcomed and acted on any concerns raised regarding on site safety"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
10	Multiple Choice	<p>If you attended the Tantallon wildfires during the first 24 hours, please indicate your level of agreement with this statement:</p> <p>"I received an adequate amount of training from HRFE prior to this incident, to adapt to the situation and perform the tasks I was assigned during this incident".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
11	Multiple Choice	<p>Regardless of when you attended the Tantallon wildfires, please rate your agreement with the following statement:</p> <p>"I felt that the firefighters from other agencies and responders from other agencies (Police, GSAR, DND, etc.) communicated well with my team".</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>
12	Multiple Choice	<p>Regardless of when you attended the Tantallon wildfires, please indicate all applicable methods that you were dispatched to the scene.</p>	<p>I was paged by dispatch (either station tones/I am responding/volunteer pager).</p> <p>I was requested by IC (request for additional units or a specific individual request).</p> <p>I self dispatched to the scene in my personal motor vehicle.</p>

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
			<p>I self dispatched to the scene in an apparatus that was already on route.</p> <p>I self dispatched to the scene and also self dispatched an apparatus.</p>
13	Open Ended	Regardless of when or if you attended the Tantallon wildfires, what is the number one thing that HRFE can do to improve future responses to Wildland Urban Interface fires?	Comment box
14	Open Ended	Regardless of when or if you attended the Tantallon wildfires, what is the number one thing that HRFE did well and should continue to do in the same manner, at future responses to Wildland Urban Interface fires or other incidents?	Comment box
15	Open Ended	Is there anything else you'd like to add, that could contribute to the PIA recommendations?	Comment box

External Firefighter Survey

Opening Remarks:

HRFE is conducting a Post Incident Analysis (PIA) of the Tantallon wildfire. The PIA aims to guide and improve future operations and responses by identifying areas for improvements and strengths to sustain. As an agency representative attending this fire, your feedback is essential in helping us do this.

- We encourage you to forward this survey link to any other personnel in your agency that were involved with the wildfire response, we value all input & do not have contact email addresses for all.
- Please note that all these questions are to provide feedback to HRFE. The City of Halifax Community Safety (which includes the Emergency Management Office) is also embarking on a separate After-Action Report, which will be focused on the city-wide response.
- Thank you for your honesty, time, and consideration to these questions. If you have any questions, concerns, or would like to follow up with staff on this, please email tantallonfire@halifax.ca.

Post Incident Analysis May 2023: Wildland Urban Interface Fire

Below is a link to two surveys to gather feedback from your agency and we ask for the survey responses to be submitted within two-weeks.

Survey Link for non-frontline firefighting personnel: [link](#)

Survey link for frontline firefighters: [link](#)

Survey:

Thank you for your brave and tireless efforts in attending the Tantallon wildfires. Interagency cooperation was vital to getting the fire under control and then out and your contribution is very much appreciated by HRFE.

HRFE is conducting a Post Incident Analysis (PIA) of the Tantallon wildfire. The PIA aims to guide and improve future operations and responses by identifying areas for improvements and strengths to sustain. This survey is designed for you to provide your feedback on a number of areas including safety, logistics, training, and interagency communication. You will see there is also an option for you to provide narrative at the end highlight anything else you'd like to share.

Please note that this survey will be used to guide HRFE in improvements of our responses at future Wildland Urban Interface fires. There are no incorrect responses - just facts that can help inform recommendations moving forward.

This survey is not intended to be used to gauge feedback on HRM's city wide response, or the IC on scene, DNRR's response. Please try to ensure your responses are just focused on feedback to HRFE.

Please note that a summary of the multiple-choice responses will be provided in the PIA but not in a way that identifies individuals or departments with specific responses.

Themes from the narrative text will be included but no one will be individually named or identified with any of the information from this survey in the PIA.

Survey sent to multiple staff email addresses at 17 agencies, 9 responses received.

No	Type	Questions	Answers
1	Multiple Choice	Please identify the department or organization you responded with.	NS Department of Natural Resources and Renewables Department of National Defence (brush/utility) Hubbards Fire Enfield Fire Elmsdale Fire Mount Uniacke Fire New London Fire – PEI

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
			<p>Department of National Defence (redeployment from regular duties)</p> <p>Cape Breton Fire</p> <p>Lantz Fire</p> <p>Truro Fire</p> <p>Other</p>
2	Multiple Choice	<p>Please select the most appropriate statement regarding your department's deployment. Please select the final option unless you were personally involved in the deployment request.</p>	<p>HRFE notified & requested provincial DNRR support</p> <p>Paged by dispatch via existing mutual aid agreements</p> <p>Requested by DNRR (province)</p> <p>Requested by HRM's Emergency Operations Centre</p> <p>The formal deployment request was not something I was personally involved in.</p>
3	Multiple Choice	<p>Please select the most appropriate statement regarding how your department was stood down at the end of your department's service at the Tantallon wildfires. Please select the final option unless you were personally involved in the stand down direction.</p>	<p>Department was stood down by IC or lead on scene.</p> <p>Department was redeployed via DNRR.</p> <p>Department was redeployed or stood down via dispatch.</p> <p>I was not personally involved with the stand down or redeployment direction.</p>
4	Multiple Choice	<p>Please rate your level of agreement with the following statement:</p> <p>"I received the appropriate information I required from HRFE to perform my duties or tasks assigned while on scene"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p>

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
			Not applicable
5	Multiple Choice	<p>Please rate your level of agreement with the following statement:</p> <p>"During the course of the event, I felt that HRFE welcomed and addressed any concerns my department or any other department brought forward regarding safety"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p> <p>Not applicable</p>
6	Multiple Choice	<p>Please rate your level of agreement with the following statement:</p> <p>"During the course of the event, HRFE required me to carry out tasks that are not normally my responsibility for which I had not been trained and/or for which I did not have the ability to adapt to"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p> <p>Not applicable</p>
7	Multiple Choice	<p>Please rate your level of agreement with the following statement:</p> <p>"The HRFE logistics team on scene provided what I needed and/or welcomed requests if I needed something not readily available"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p> <p>Not applicable</p>
8	Multiple Choice	<p>Please rate your level of agreement with the following statement:</p> <p>"Based on my experience with HRFE members while at the Tantallon wildfires, I would be comfortable responding to incidents with HRFE members in the future"</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p> <p>Not applicable</p>
9	Open ended	<p>Based on your experience on scene, what is the number one thing that HRFE can do to improve future responses to Wildland Urban Interface fires? (short bullet point responses welcomed)</p>	Comment Box
10	Open ended	<p>Based on your experience on scene, what is the number one</p>	Comment Box

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
		thing that HRFE did well and should continue to do in the same manner, at future responses to Wildland Urban Interface fires or other incidents? (short bullet point responses welcomed)	
11	Open ended	Is there anything else you would like to add?	Comment Box

Other Agency Survey

Opening Remarks:

HRFE is conducting a Post Incident Analysis (PIA) of the Tantallon wildfire. The PIA aims to guide and improve future operations and responses by identifying areas for improvements and strengths to sustain. As an agency representative attending this fire, your feedback is essential in helping us do this.

- We encourage you to forward this survey link to any other personnel in your agency that were involved with the wildfire response, we value all input & do not have contact email addresses for all.
- Please note that all these questions are to provide feedback to HRFE. The City of Halifax Community Safety (which includes the Emergency Management Office) is also embarking on a separate After Action Report, which will be focused on the city-wide response.
- Thank you for your honesty, time, and consideration to these questions. If you have any questions, concerns, or would like to follow up with staff on this, please email tantallonfire@halifax.ca.

Below is a link to two surveys to gather feedback from your agency and we ask for the survey responses to be submitted within two-weeks.

Survey Link for non-frontline firefighting personnel: link

Survey link for frontline firefighters: link

Survey:

HRFE is conducting a Post Incident Analysis (PIA) of Halifax Regional Fire & Emergency's role in the Tantallon wildfires. The PIA aims to guide and improve future operations and responses by identifying areas for improvements and strengths to sustain. As an agency representative attending this fire, your feedback is essential in helping us do this.

Please note that all of these questions are to provide feedback to HRFE. The City of Halifax

Post Incident Analysis May 2023: Wildland Urban Interface Fire

Community Safety (which includes the Emergency Management Office) is also embarking on their own After Action Report, which will be focused on the city-wide response.

Thank you for your honesty, time and consideration to these questions.

If you have any questions, concerns, or would like to follow up with staff on this, please email tantallonfire@halifax.ca

Survey sent to multiple staff email addresses at 17 agencies, 9 Responses received.

No	Type	Questions	Answers
1	Multiple Choice	What area of response and/or recovery were you associated with during the Tantallon wildfires?	<p>Ground Search and Rescue</p> <p>Nova Scotia Department of Natural Resources and Renewables (non-firefighters only - DNRR firefighters will receive a separate survey)</p> <p>Utilities, Energy or Telecommunications</p> <p>Public Safety (HRP, RCMP, EHS)</p> <p>Provincial Emergency Management Office</p> <p>Municipal or Provincial Fire Department providing aid</p> <p>Department of National Defence</p>
2	Multiple Choice	Please rate your agreement with the following statement: "In the first 24 hours, my agency had the information they required from HRFE to do their role during this first period"	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p> <p>Not true at all</p> <p>Not applicable, my agency was contacted/joined the response after the first 24 hours</p>
3	Multiple Choice	<p>Please rate your agreement with the following statement:</p> <p>"During the sustained operations period my agency had the information they required from</p>	<p>Extremely true</p> <p>Somewhat true</p> <p>Slightly true</p>

Post Incident Analysis May 2023: Wildland Urban Interface Fire

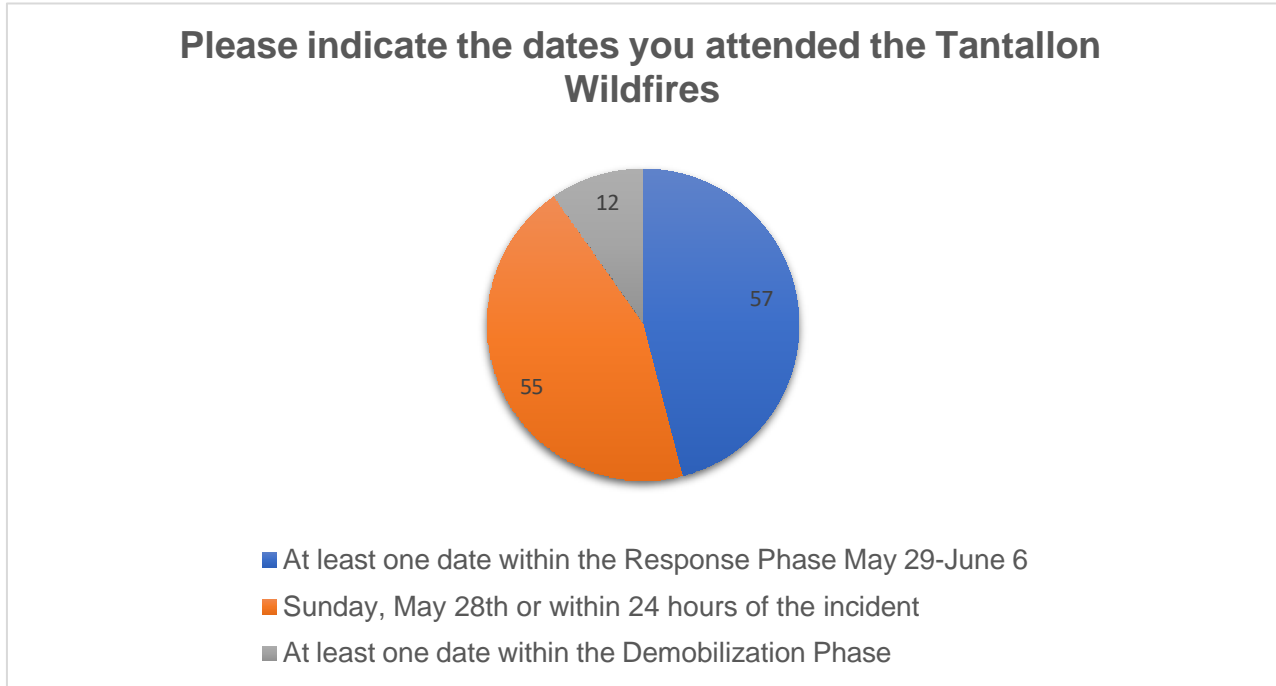
No	Type	Questions	Answers
		HRFE to do their role during the period"	Not true at all Not applicable, my agency was not contacted/required during the sustained operations period.
4	Multiple Choice	Please rate your agreement with the following statement: "During the demobilization period my agency had the information they required from HRFE to do their role during this period"	Extremely true Somewhat true Slightly true Not true at all Not applicable, my agency was not a part of this period.
5	Multiple Choice	Please rate your agreement with the following statement: "During the recovery phase, my agency had the information they required from HRFE to do their role during this period"	Extremely true Somewhat true Slightly true Not true at all Not applicable, my agency was not a part of this phase.
6	Multiple Choice	Please rate your agreement with the following statement: "During the course of the event, I felt that HRFE welcomed and addressed any concerns my agency or other agency brought forward regarding safety"	Extremely true Somewhat true Slightly true Not true at all Not applicable
7	Multiple Choice	Please rate your agreement with the following statement: "During the course of the event, HRFE required me to carry out tasks that are not normally my responsibility for which I had not been trained"	Extremely true Somewhat true Slightly true Not true at all
8	Multiple Choice	Please rate your agreement with the following statement:	Extremely true Somewhat true

Post Incident Analysis May 2023: Wildland Urban Interface Fire

No	Type	Questions	Answers
		"I felt that HRFE welcomed and addressed any concerns my agency or any other agency brought forward regarding logistics"	Slightly true Not true at all Not applicable/I was not involved enough to answer this.
9	Multiple Choice	Please rate your agreement with the following statement: "In my experience, HRFE frontline firefighters worked well with my agency during the event"	Extremely true Somewhat true Slightly true Not true at all I did not have any / enough first hand experience with firefighters on the ground.
10	Multiple Choice	Please rate your agreement with the following statement: "In my experience, non-firefighting HRFE staff worked well with my agency during the event"	Extremely true Somewhat true Slightly true Not true at all I did not have any / enough first hand experience with HRFE staff on the ground.
11	Open Ended	If there was one main thing HRFE could have done differently that would have made it easier for you or your agency to do your work, what would that be?	Comment box
12	Open Ended	If there was one main thing that HRFE did, that made it easier for your or your agency to do your work, what was it?	Comment Box

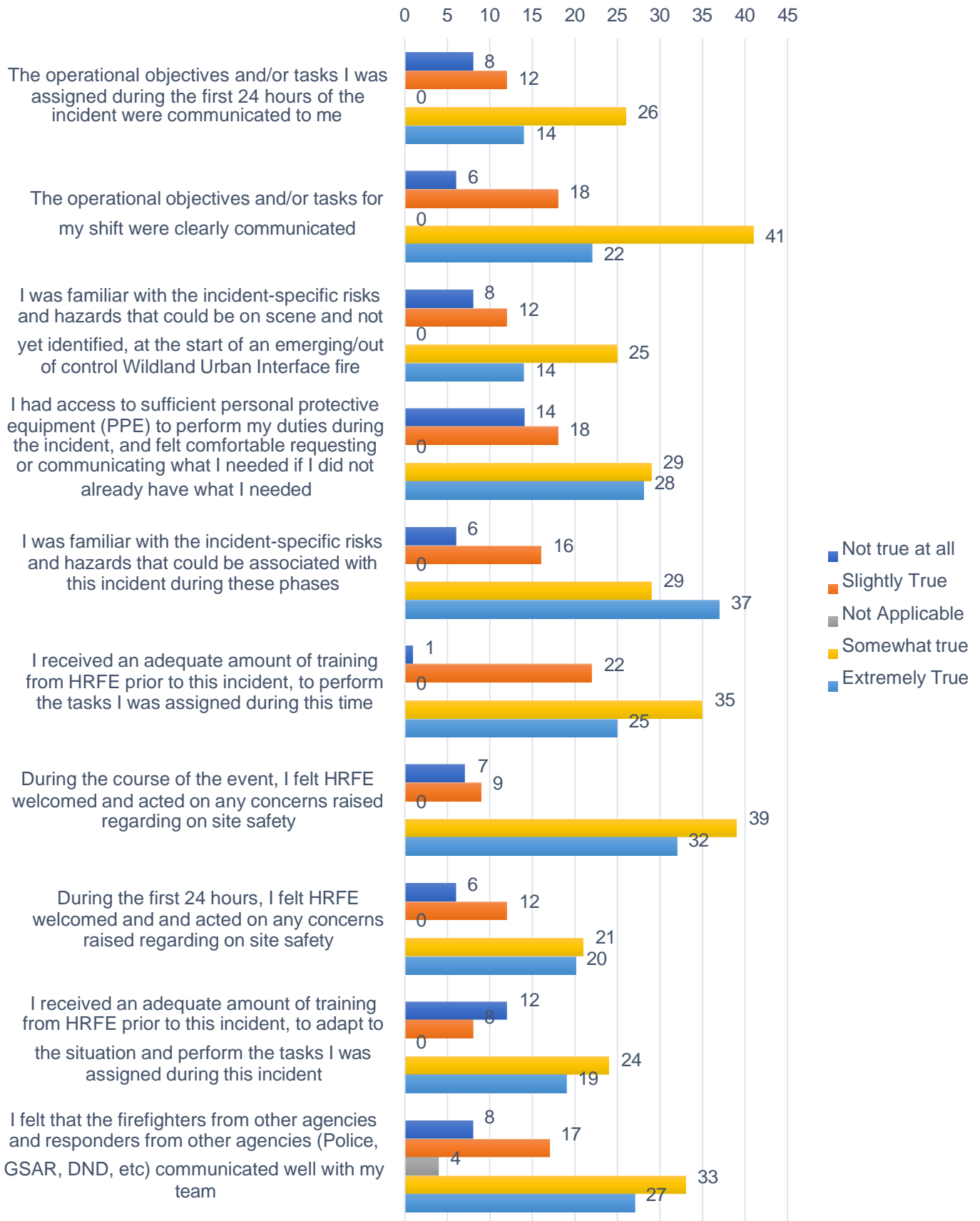
Appendix E: Survey Response Data

HRFE Firefighter Survey Responses

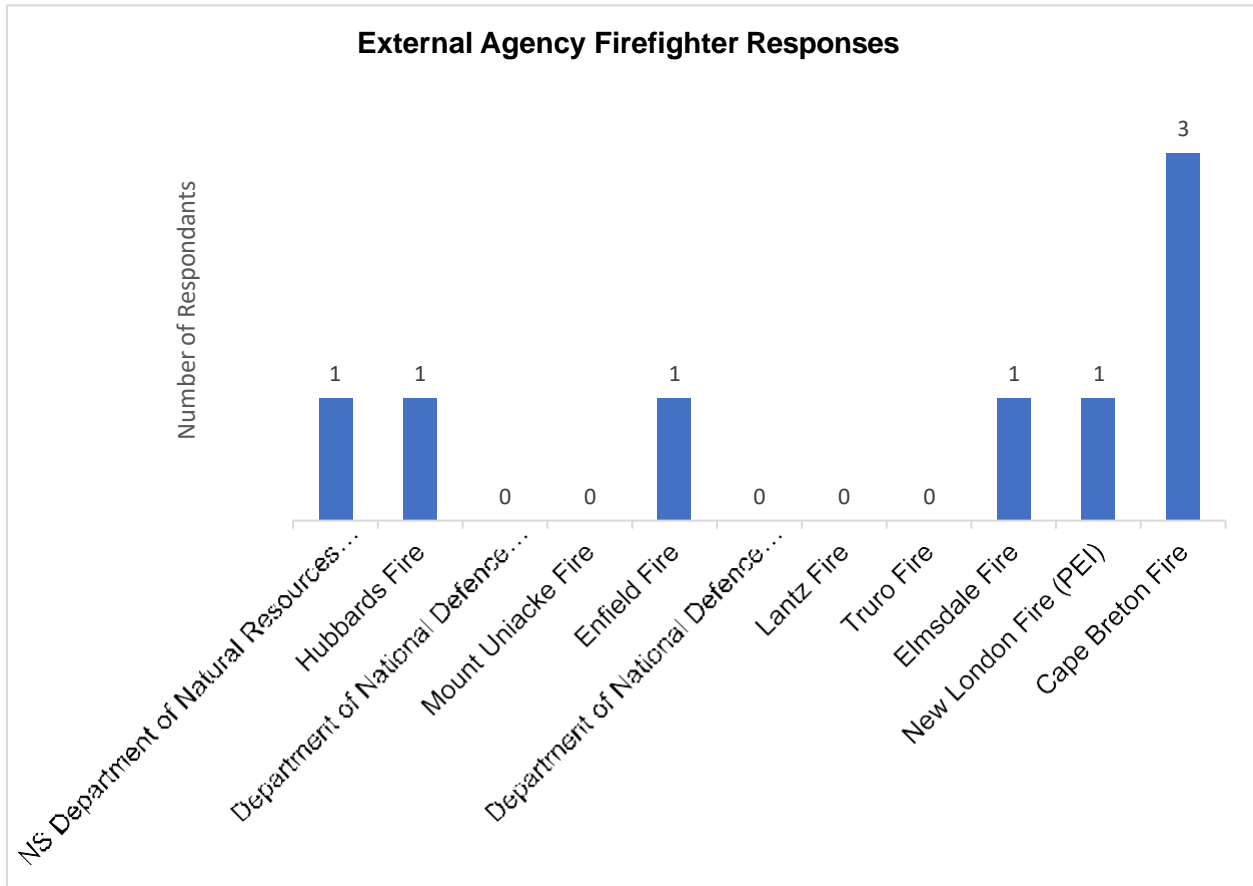


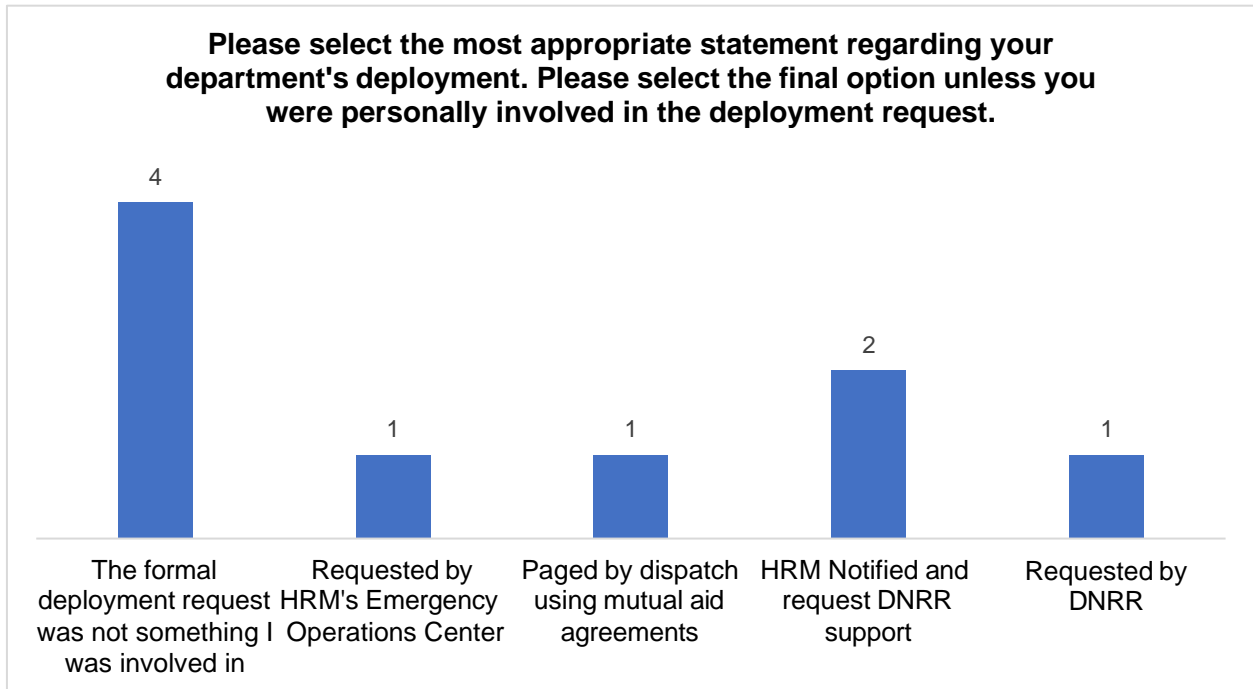
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HRFE Firefighters Responses



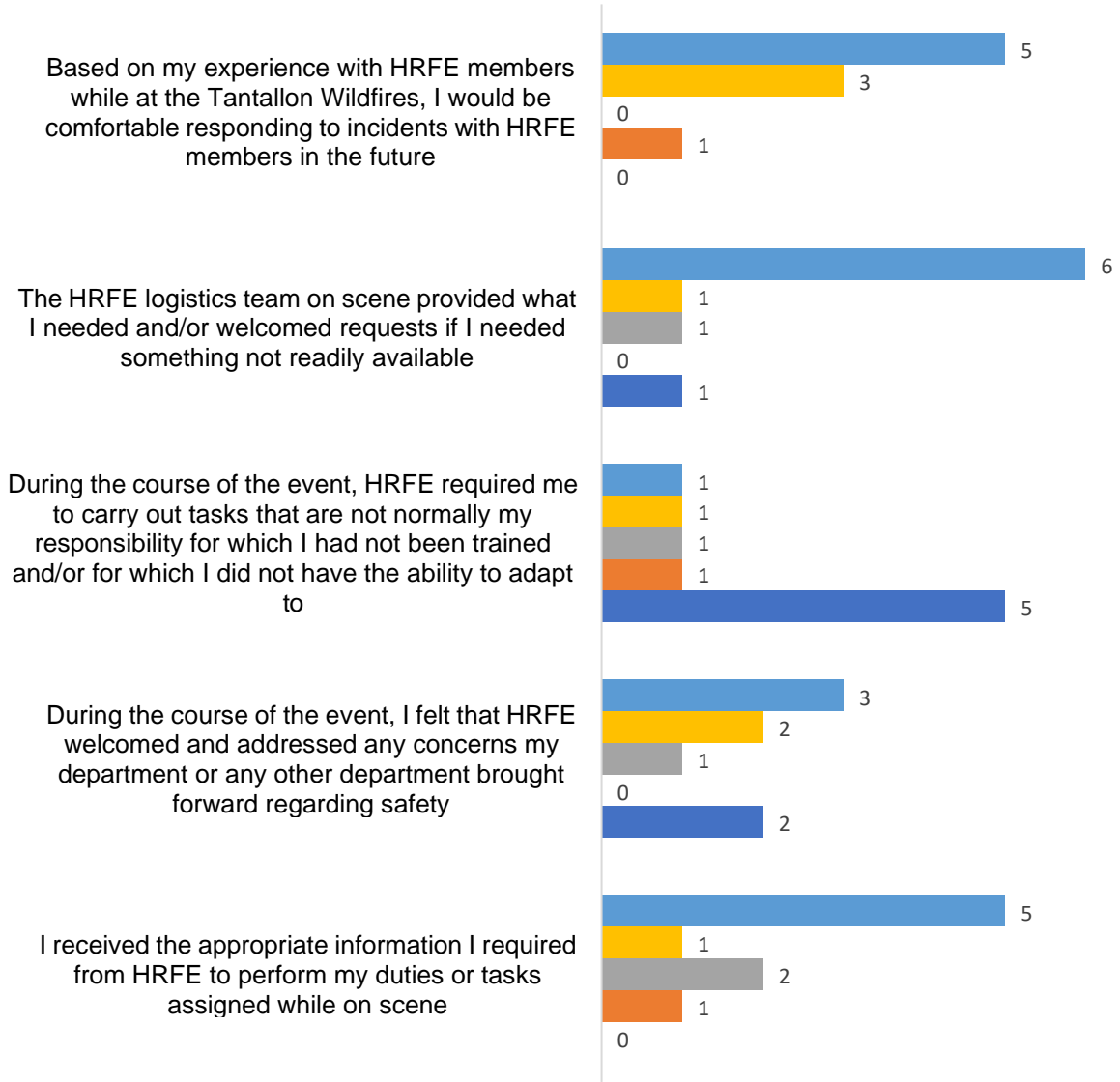
External Firefighter Survey Responses



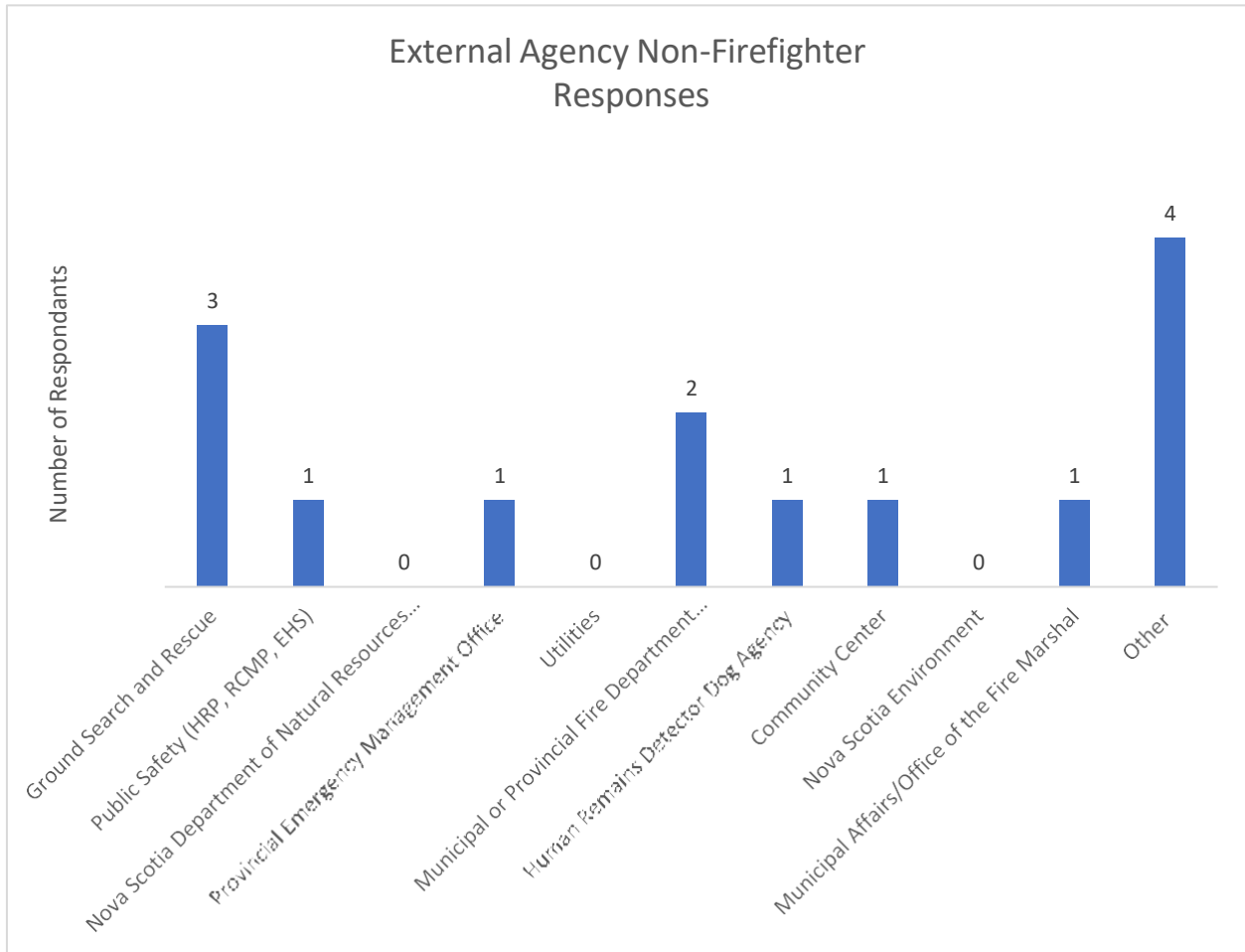


External Agency Firefighter Responses

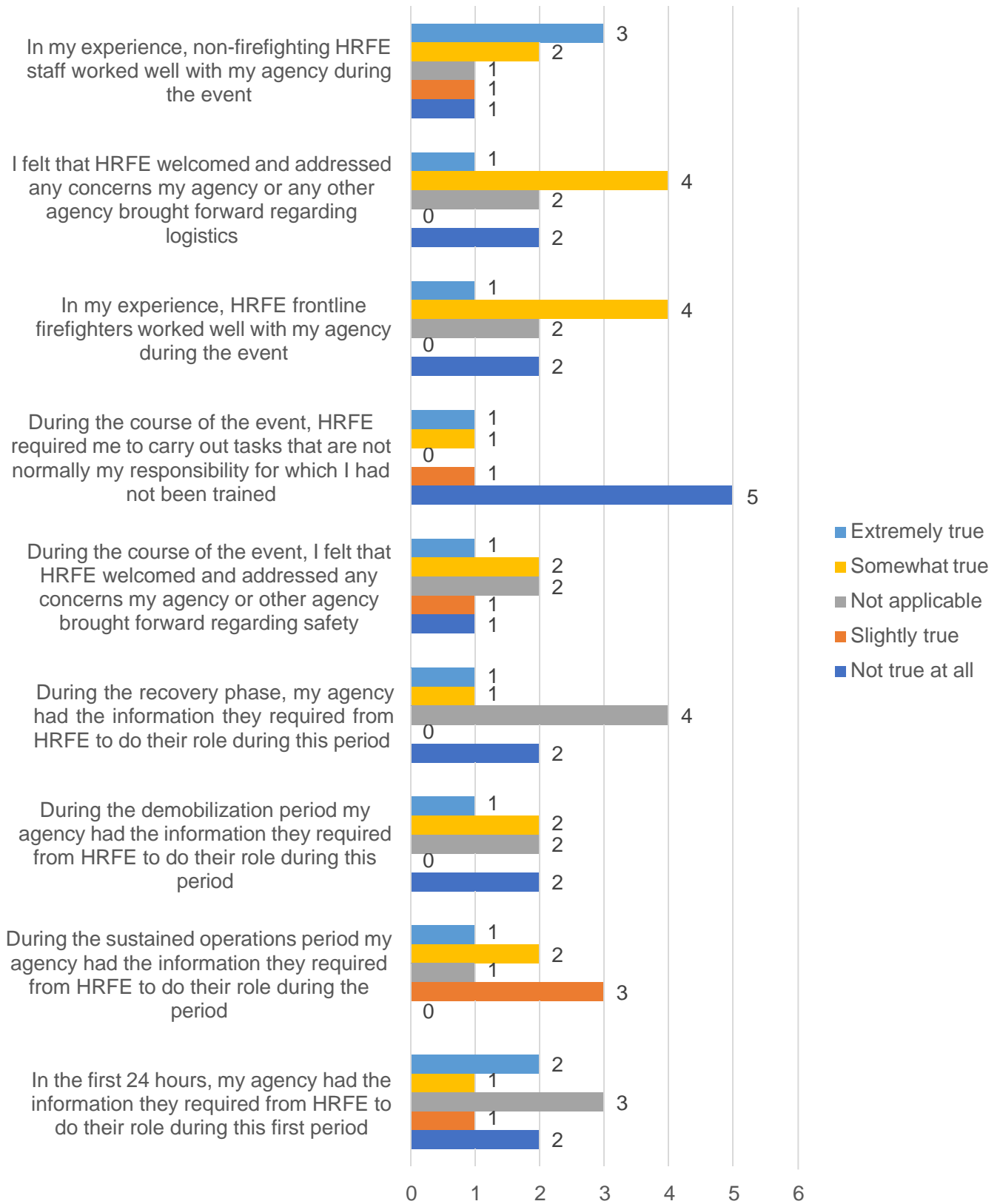
■ Extremely true
 ■ Somewhat true
 ■ Not applicable
 ■ Slightly true
 ■ Not true at all



Other Agency Survey Responses



External Agency Responses



Appendix F: Supporting Documents

- 2017 Wildfires: Cariboo Regional District EOC (2018). Cariboo Regional District, British Columbia. <https://www.cariboord.ca/en/emergency-and-protective-services/resources/Documents/EOC%20Reports/2017%20CRD%20EOC%20After%20Action%20Report%20-%20Wildfires.pdf>
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- A Case Study of the Camp Fire (2023). National Institute of Standards and Technology <https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.2252.pdf>
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- Alberta Wildland Urban Interface Guidelines (2023). Government of Alberta <https://open.alberta.ca/dataset/238797a1-ef97-40aa-a0b0-ac9ca76aaa53/resource/f5741011-d627-4dd1-a0dd-b63490287658/download/pses-2023-alberta-wildland-urban-interface-guidelines.pdf>
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- Emergency Alerts and Orders. City of Kamloops <https://www.kamloops.ca/public-safety/emergency-preparedness/emergency-alerts-orders>
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Photo Credit: coreyjisenor.com/after-burn