Planning for a Response to Mass Evacuation Emergencies Within

the Jurisdiction of Los Alamos County

Wendy E. Servey

Los Alamos Fire Department, Los Alamos, NM

Certification Statement

I hereby certify that this paper constitutes my own product, that were the language of other is set forth, quotation marks so indicate, and that the appropriate credit is given where I have used the language, ideas, expressions or writings of others.

Signed:

Wendy E. Servey

Date: <u>11/29/2018</u>

Abstract

Los Alamos County (LAC) consists of the towns of Los Alamos, White Rock, and the scientific research facility of Los Alamos National Laboratory (LANL) in New Mexico, and this region has experienced three mass evacuation emergencies. All evacuations were due to wildfires. The problem was that the Los Alamos Fire Department (LAFD) did not have an operational procedure for mass evacuation, sheltering, and re-entry actions which could impact citizen and firefighter safety. Evacuation and mass care are designated as one of the primary roles assigned to the fire department through the county's all-hazard emergency response plan. The purpose of this applied research project was to develop a mass evacuation, shelter, and re-entry draft operational procedure, to give direction to the company officer and to collaborate with LAC unified action partners. Action methodology guided the following questions; (a) What are the laws, regulations, and standards that local and state agencies use for mass evacuations? (b) What operational procedures do other fire agencies and LAC unified action partners have in place to respond to mass evacuation emergencies? (c) What are the responsibilities and resources required of LAFD to support mass evacuation and sheltering emergencies? (d) What barriers have been identified by other agencies for operational procedures for mass evacuation emergencies? The procedures included: (a) examining local documentation, (b) researching barriers, (c) reviewing email interviews, (d) survey responses, and (e) ascertaining what elements were applicable to the identified jurisdiction in a draft operational procedure in a mass evacuation emergency. Recommendations include the formation of a jurisdictional working group to coordinate efforts, sectors to include demographic information for responders, and an ongoing communications plan throughout the incident. A draft operational procedure for Mass Evacuation, Sheltering and Re-Entry was developed.

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Planning for a Response to Mass Evacuation Emergencies Within the Jurisdiction of LAC

The Los Conchas Fire started on June 26, 2011, due to a downed powerline by strong eastern winds which then continued to burn in the Santa Fe National Forest near Los Alamos, New Mexico. The effects from the wildfire were felt in the early days by filling the town with the haze of grey smoke. Air quality coupled with underlying health problems and the town's history caused a few residents to voluntary self-evacuate to a safer location. On the first day of the fire, June 26th at "4:30 p.m. a Type I Incident Management Team (IMT) was ordered (Reinarz, IC)" (Honig, 2012). On June 27, 2011 "fire-behavior experts had predicted Los Conchas would expand to 12,000 acres overnight. Instead, by the time the sun rose, it had rendered 43,000 acres to white ash." (Dickman, K., 2017, para. 4). Locally, LAFD performed a call back of all available personnel to report to work. The on-duty shift had grown from just over 30 members to a working force of nearly 130. The word was to prepare for an extended deployment of fourteen days or more. The mission was clear, to protect structures of the Los Alamos National Lab (LANL) and the residences of the town of Los Alamos from stray winddriven embers. At night, the orange glow just over the mountain range surrounding the town quietly reminded responders and residents of the fire that lied beyond. "In all, this fire burned 156,593 acres, making it the largest fire in New Mexico history" (LAC-LHMP, 2016, p. 4.88). The fire aimed its sights directly at Los Alamos county to include threatening the national laboratory. As a result, the order to evacuate was given. An LAFD Captain at that time, this author was initially directed to evacuate the town and to be the only paramedic on the hill. Other fire resources were committed to assignments patrolling near the fire line or staged to protect LANL high hazard and secure facilities whose missions remain 'top-secret' and important to National Security. No guidance was given or known on how to evacuate a town. This

experience raised several questions. For example: (a) If notifications were already made, who received the notifications? (b) Are there any priority areas? (c) What were the evacuation routes for residents and for designated for emergency vehicles? (d) When do people need to leave? (e) Where are people to go? (f) What do they do with their animals? (g) How and when can they return?

The author reviewed the 2017 updated Los Alamos County Emergency Operations Plan (LAC-EOP) and discovered that this document designates "evacuation" and "mass care" as one of its primary responsibilities assigned to the LAFD. In reading the updated LAC-EOP, along with the author's personal account from the Los Conchas, resurfaced an old question. Could a mass evacuation procedure be a specialized operation or function as part of the larger operational picture? If so, what would this look like for a fire department?

The problem was that the Los Alamos Fire Department (LAFD) did not have an operational procedure for mass evacuation and sheltering incidents which could impact citizen and firefighter safety. The purpose of this applied research project was to develop a mass evacuation and sheltering draft operational procedure to give direction to the company officer and to collaborate with LAC unified action partners. Action methodology was used to guide the following questions: (a) What are the laws, regulations, and standards that local and state agencies use for mass evacuations? (b) What operational procedures do other fire agencies and LAC unified action partners have in place to respond to mass evacuation emergencies? (c) What are the responsibilities and resources required to LAFD to support a mass evacuation/sheltering emergency? (d) What barriers have been identified by other agencies for operational procedures for mass evacuation emergencies?

Background and Significance

The Los Alamos Fire Department (LAFD) is situated in Los Alamos County, New Mexico, approximately 35 miles northwest of Santa Fe and serves the communities of Los Alamos and White Rock. LAFD trains for an all-hazard response in just over 100 square miles. The response area includes the major response priority to the Los Alamos National Laboratory (LANL) which is contained in just over 35 square miles. The fire department is made up of nearly 140 personnel. Personnel includes: (a) fire chief, (b) deputy chief, (c) nine battalion chiefs with three being operational and the balance having assigned division chief responsibility, (d) eleven civilian support staff, and (e) one captain assigned to the day shift as a training officer. Three shifts operate currently with a minimum of 37 personnel assigned with eight captains, eight driver engineers and balance of uniformed career personnel. Each shift is assigned: (a) hazmat technicians, (b)paramedics, (c) technical rescue technicians, (d) wildland specialists, and (e) fire investigators assigned as incentive disciplines ready to respond to 18,738 residents when called upon. (U.S. Census Bureau, 2017).



When the Los Alamos Fire Department started in 1944, the community was forming predominately because of the Manhattan Project by J. Robert Oppenheimer. The project's mission was to invent the atomic bomb as a result of World

War II (WWII) weapons race. The earliest population recorded on has not changed much since the 1950's which was approximately 10,000 population (U.S Census Bureau, 2017). The county of or the town of Los Alamos is known as upon 'the hill,' and the town's history began in secrecy. The location was chosen, because it is hard to get to, or isolated. Evacuation, especially a mass evacuation from Los Alamos County (LAC) can be challenging because of the high density of people, topography of the area, and limited access. Los Alamos County is perched on a series of high flat mountain or 'mesa' plateaus in mountainous terrain. The location is described as finger-like mesa's separated by sheer rock cliffs. Response districts are classified as suburban rural for LAFD due to the finger mesas that cause fragmenting of neighborhoods and emergency response. Roadways are limited in and out of the area due to the terrain. Three paved main roadways exist as primarily two-lane roads winding down from the 'the hill' topping out at over 7, 000 feet in elevation. A gated un-developed dirt road, for emergency use only, is used to ease any overflow of traffic to the routes out of town.

Los Alamos County is the smallest county in New Mexico, yet it has a high population density of 164.4 people per square mile (U.S Census Bureau, 2017). The county is landlocked with limited buildable space due to the geography of the area and the county land is either LANL use or is surrounded by other public lands to include: (a) Santa Fe National Forest, (b) Bandelier National Monument, (c) Valle Caldera National Park, (d) Santa Clara Pueblo, and (e) Santa Ildefanso Pueblo. The Los Alamos National Laboratory consists of approximately a third of the county's land use and scale is has been compared to Washington, D.C. In 2017, 39% of LANL's total workforce of 11,738 live in Los Alamos, while the rest of the people choose to commute from surrounding areas. (LANL, 2018). Since 1940, LANL's vocation has evolved to use science for multi-disciplinary fields such as: (a) nuclear, (b) biotech, (c) medicine, (d) new energy, (e) weapons and (f) matters of national security.

Evacuations because of fire has happened three times in Los Alamos County testing the jurisdiction's emergency procedures with little to no-notice. In 1954, the Water Canyon Fire was the first to threaten the town and the first fire to cause an evacuation of Los Alamos. After a few years of smaller fires in the area, it wasn't until May 2000 that the town of Los Alamos

experienced its second mass evacuation due to the Cerro Grande Fire. The Cerro Grande Fire, burned 43, 000 acres and devastated the community by destroying nearly 400 homes within its boundaries. In June 2011, the Los Conchas Fire burned over 150,000 acres fueled by dense forests, high winds and dry conditions. A flank or branch of the fire reached within one acre of LANL structures which triggered the most recent evacuation of "over 14,000 in population" (Vigil, M. personal communication September 6, 2018).



Figure 4.44 Los Alamos County Fire History 1982-2013. Reprinted from Los Alamos County Local Hazard Mitigation Plan Update (p. 4.88), by Los Alamos County, NM, 2016. Reprinted with permission.

Hazards such as wildfire, flash flooding, and the less prevalent earthquake faults or dormant volcanos exist in the area. Man-made hazards of chemical spills or unknown substances reactions have the potential for hazmat operations, as well as, terrorism target potential of LANL

because of its mission could very well be a trigger a mass evacuation event. Table 4.3:

represents Los Alamos County Disaster County Declaration History from FEMA (County,

Federal, State) as presented in the local Hazard Mitigation Plan Update, (p. 4.5), by Los Alamos County, NM (2016). Reprinted with permission.

Table 4.3	Los Alamos County Federal and State Disaster Declaration History									
Disaster Declaration	Hazard Type	Incident Period	Declaration Date	Declaring Agency						
DR-4152	Severe Storms, Flooding, and Mudslides	9/9/2013-9/22/2013	10/29/2013	Federal						
DR-4079	Flooding	6/22/2013-7/12/2013	8/24/2013	Federal						
DR-4047	Flooding	8/19/2011-8/24/2011	11/23/2011	Federal						
FM-2933	Los Conchas Fire	6/26/2011-8/25/2011	6/26/2011	Federal						
EM-3229	Hurricane Katrina Evacuation	8/29/2005-10/1/2005	9/7/2005	Federal						
DR-1329	Cerro Grande Wildfire	5/5/2000-6/9/2000	5/13/2000	Federal						
EM-3154	New Mexico Wildfire (this would become the Cerro Grande fire above)	5/5/2000-7/7/2000	5/10/2000	Federal						
EM-3128	New Mexico Extreme Fire Hazard	6/29/1998-10/15/1998	7/2/1998	Federal						
EM-3034	New Mexico Drought	3/2/1977	3/2/1977	Federal						
Source: FEMA										

In a large-scale disaster, either partial or full activation of the emergency operations center (EOC) will be initiated. In the jurisdiction, LAC-LANL maintains operations out of a state of the art EOC, that can be self-sustaining for 14 days. The EOC can hold up to 120 people during an emergency. A secondary, smaller backup EOC location is located Fire Station three, in White Rock approximately eight miles away. The emergency manager or emergency management (EM) staff of both LANL-LAC will work together to facilitate strategies for a mass care and evacuation event for the jurisdiction. Los Alamos County has jurisdictional authority over LANL, being a federal facility. As referenced in the (2017) LAC-EOP base plan emergency operations as assigned to the fire department give primary responsibility in evacuation and mass care areas with the help of other agencies. (p. 30).

Once the EOC is activated other agencies will have roles to assist in evacuation to include: (a) LAC-LANL EM, LANL-security force, (b) county manager, (c) LAPD, (d) public

works-traffic and streets, (e) dispatch, (f) animal control, and (g) hospital. Identified agencies with responsibilities for mass care and shelter include: (a) LAC-LANL EM, (b) LAPD, (c) LANL-security force, (d) community services, (e) dispatch, (f) GIS, (g) planning and zoning, (h) public information office, (i) animal control (j) risk management, (k) fleet-vehicle management. A list of emergency operations responsibilities are presented in Figure 1.

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Los Alamos County Department	Direction and Control	Base Plan	Operations	Planning	Logistics	Finance and Administration	Animal Sheltering	Debris Management	Evacuation	Mass Care and Shelter	Resource Management	Public Information
County Manager	Р								Р		s	Ρ
Police Department		s	Р	Р	s	s	с		Р	s	Р	S
Fire Department		s	Р	Р	s	s			Р		Р	S
Emergency Management	с	P	P	P	P	s	s	s	c.	Р	P	s
Public Works			P	P		-	- U	<u> </u>	-	<u> </u>	s	s
Public Works – Traffic and Streets			P					Р	Р		P	s
Solid Waste			s	s				Р			Р	
Public Utilities			Р	Р							s	S
Community Services				s				s		Р	Р	
County Sheriff			с	с					с		с	
Consolidated Dispatch			s				с	с	s	с	s	S
GIS			s	s				с	с	с		
Planning and Zoning			s						с	с		
Public Information Office			s							Р		Ρ
Risk Management					Р	s				с		
Procurement					Р						s	
Human Resources					Р	s					s	
Finance					s	Р					s	
Police Department – Animal Control				s			Р			Р	s	С
Airport				s	s	с					Р	
Fleet									s		Р	
Medical Center										Р	s	s
Parks, Recreation and Open Space			s	s		s	с	с			Р	
									P = S= Se	Primary condary	/ Respo	nsibi nsibi

Figure 1: Los Alamos County Departmental Emergency Operations Responsibilities. Reprinted from Los Alamos County Emergency Operations Plan (Base plan - p. 30), by Los Alamos County, NM, 2017 with permission.

The LAC jurisdiction has experienced evacuations due to the threat of wildfire. Locally, operational priorities remained in protective mode for LANL facilities and residences, but protective measures expand quickly to facilitate an evacuation assignment. If no direction is given, personnel, apparatus or other agencies will move in an autonomous manner to a perceived or real threat in a disorganized arrangement. As a result, limited coordination of operational goals both internally and externally relative to immediate need within the LAC jurisdiction have been exhibited. Part of the Los Alamos Fire Department's mission statement is to "provide exceptional services for the preservation of life, environment, and property." (Los Alamos Fire Department, 2017, p. 4). Unfortunately, the Los Alamos Fire Department has not always met the mark when it comes to providing information to responders on how to operate in an evacuation emergency within Los Alamos County.

This research will allow the researcher to incorporate curriculum presented at the National Fire Academy Course Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) manual that speaks to the National Response Framework (NRF) protocols of "save lives, and protect the health and safety of the public, responders and recovery workers" (U.S. Fire Administration, 2016, p. 47). In addition, the manual references the National Response Framework (NRF) premise that "all incidents are local" and "incidents are typically managed at the lowest possible level" (U.S. Fire Administration, 2016, p. 49). This research addressed the following United States Fire Administration (USFA) goals. Goal 1: Reduce Fire and Life Safety Risk Through Preparedness, Prevention and Mitigation; Goal 2: Promote Response, Local Planning, and Preparedness for All Hazards; and Goal 3: Enhance Fire and Emergency Services' Capability for Response to and Recovery from All Hazards (United States Fire Administration [USFA], 2018 pp. 10-12).

Literature Review

Early on, humans have used their senses for survival or protective measures to avoid a perceived a or real threat and sought shelter elsewhere. Early recorded evacuation occurred due Persian war in October 481 BC when "the Athenians pass the Decree of Themistocles and begin an orderly evacuation." (Garland, 2016, p. xii). Today, NFPA 1616 Standard on Mass Evacuation, Sheltering and Re-entry Programs (2017 ed.) summarizes that mass evacuations can happen for a variety of hazards and risk exposures that include: (a) geological, (b) meteorological, (c) biological, (d) accidental (human-caused), (e) international (human-caused), and (f) technology-caused incidents (pp. 7-8, 2016). New headlines early in 2018, continued to highlight diverse examples of hazards illustrated above such as: the Carr Fire in California where the U.S "evacuated 38,000" people, (Vercammen, Chavez, Mossburg, Vera, 2018) (b) a fire from a legacy WWII bomb defusal in Dresden, Germany found 9,000 displaced, (The Telegraph, 2018) and (c) "1.5 million were ordered to leave the U.S. coastlines of North Carolina, South Carolina, and Virginia ahead of Hurricane Florence." ("Hurricane Florence," n.d.). Previous research by the U.S. Nuclear Regulatory Commission (NRC) in 2003 (as cited in U.S. Department of Transportation, 2007) examined case studies of evacuations that occurred across the country from January 1, 1990, through June 30, 2003:

The NRC observed that a large-scale evacuation involving 1,000 or more people occurs approximately every three weeks. The study called attention to the leading causes of evacuations as natural disasters (58 percent), with wildfires accounting for 23 percent of these evacuations, technological disasters accounted for 36 percent of evacuations. (U.S. Department of Transportation, Federal Highway Administration, 2007).

As mass evacuations are due to large-scale disasters local governments have the option of protecting the public by issuing evacuation emergency warnings, recommendations to evacuate, up to and including orders either voluntary or mandatory in nature. "Evacuation laws and their enforcement are vital to the well-being of people during an emergency and these laws vary from state to state" (Hoskins & Lacey, 2016, p. 4).

Most states employ the home rule and allow local jurisdictions or the designated Authority Having Jurisdiction (AHJ) to decide based on the incident at hand. In 2018, "only three states have laws in place to enforce mandatory evacuations - California, New York and North Carolina, with violators facing misdemeanor charges. The California Emergency Services Act also includes possibilities of a fine up to \$1,000 or imprisonment for up to six months" (Kiggins, 2018). Police and the state could employ police powers, but often as with other public service entities like fire, choose persuasion tactics such as: "local police have often asked those who refuse to evacuate for contact information for next of kin to impress on them the gravity of the risk they were assuming" (Fairchild, Colgrove, & Jones, 2006). A stronger measure now published is that NFPA 1616 recommends "to establish a law that individuals who fail to comply with a mandatory evacuation will be cited with a misdemeanor charge" ("NFPA 1616-17-PDF.pdf," n.d., p. 36). This measure is similar to the earlier example of the California Emergency Services Act (Kiggins, 2018) already in place for that state. In 2018, Hurricane Florence illustrated although mandatory for North Carolina most law enforcement officers (LEO) did not have the time, nor staff to implement nor apply a mandatory evacuation. The reports of the aftermath of the storm required over 400 people to be rescued and caused a just over a dozen deaths. (CBSnews, 2018).

Research by Kim & Oh (2015) showed that "individuals with better knowledge of local disaster response plans are also more likely to comply with evacuation orders than others" (p. 111). Additional research (Padgett, 2018) agrees and writes that public awareness is important, however, a general understanding of what evacuation terminology means for example between voluntary and mandatory. A barrier to the operational procedure of evacuation is that some residents even if they understand the warning, order, or recommendation will choose not to evacuate. As Kiggins (2018) identifies many reasons including "whether it's because they didn't believe the warnings, didn't have the financial means or refused to abandon friends, family, or pets" (para. 4).

Mass evacuation is not beneficial in all cases and the recommendation is "jurisdictions should look for opportunities to lessen the need for evacuation" (FEMA, 2018, p. 6) and ultimately balance risk or long-term effect. Case histories of lessons learned from incidents in Japan and Texas provide the viewpoint where relocation and evacuations can cause more harm. In 2011, Fukushima Daiichii suffered a nuclear accident resulting in a mass evacuation of 160,000 were a team of researchers state "The overall conclusion is that relocation should be used sparingly if at all after any major nuclear accident" (Waddington, Thomas, Taylor, & Vaughan, 2017, p. 1). The research concluded that after examining life expectancy for the risk of exposure to radiation initially vs. the stress of extended evacuation found that the effects from relocation was the disrupting to quality of life. Similarly, the 2005, Hurricane Rita left evacuees in Texas on gridlocked highway in a hot-humid environment with little support. As a result, "the Rita evacuation underscored the importance of planning for domestic mass-evacuation events, as the evacuation itself led to over 100 of the at least 119 deaths attributed to the storm" (Baker, 2018, p. i). To reduce traffic congestion in addition to the use of contra flow lanes using

information aids can assist with the flow of traffic. For example, the use of "mobile message boards or signage along evacuation routes can inform self-evacuees of traffic hazards, the location of Welcome Centers and Information Points, shelters, fueling exits, and hospitals." (FEMA, 2018, p. 23). The overall initial life safety evaluation addressed by incident command and or an EOC looks at shelter in place vs. evacuation action, the amount of time for the area to safely evacuate and the number of people required to evaluate.

According to NFPA 1616: 5.10.4 (2017 ed.), procedures evacuation should include triggers for shelter-in-place or evacuation and evacuation procedures as well as prompts for reentry (p. 9). The actions start locally with the established initial incident command structure. Incident Command (IC) or Unified Command (UC) within the National Incident Management System (NIMS) under the National Response Framework (NRF) is the place where strategy, objectives and tactics for an incident begin. The NRF, is described as a "... framework is always in effect and describes the doctrine under which the Nation responds to incidents" (FEMA, 2016, p. i). Recent disasters have uncovered that NIMS as may not be effective as it could be in the management of large-scale events due volunteers not understanding incident command system (ICS) or responders not applying it consistently. An article that used a focus group to look at reports from lessons learned during disaster reports and noted, "a coherent joint command structure often fails to emerge; our focus group specifically cited weak implementation of the incident command system (ICS) and poor understanding of unified command"("Lessons We Don't Learn," 2006, p. 4). Identifying other command structures is limited by the fire service and may be best served by looking to the military. The military utilizes mission command "is a leadership philosophy that was designed to ensure military organizations could operate effectively in uncertain situations" (Krabberød, 2014, p. 416). Mission command also makes use

of small, independent communications cells (satellite phones, computers etc.). The military itself is versed in evacuations and trains frequently for noncombatant evacuation operations (NEO) which are conducted to extract civilians from another country in case of war, security or civil unrest. Often NEO operations are a joint operation with other armed services branches, which is comparable to a jurisdiction working with different agencies or mutual aid. The identified military command starts to identify the following factors for an evacuation such as logistics, evacuation routes and communication systems. (JP 3-68, 2015, p. 182). Initial military infrastructure factors can be found in Appendix A. The military practices large scale evacuations every year. In the Spring of 2018, author Gamel wrote about how the military was gearing up for Focused Passage in S. Korea, one of the two mass evacuation NEO exercises ran annually. (para. 23).

Certain information is determined and often evacuation timeframes are difficult to plan for and evacuations are often dictated complex or dynamic incident or no-notice disasters. The Ontario Mass Evacuation Plan (OMEP) annex published the following estimates to be used in planning: "2.1 passengers/vehicle, 1000 cars/hour/per lane on arterial roads (high capacity roads that link residential streets to highways) or 1900 cars/hour/lane if the arterial road does not have control measures (i.e. traffic lights)" (OMEP, 2013 p. 10). Other timeframes used for guidance of the command of a major-incident are published as response performance objectives by the FEMA's U.S. Department of Homeland Security's (2007) *Target Capabilities List* (TCL). For example, time estimates are shared throughout the document as starting point for operations. Examples for Evacuation and Sheltering examples include: (a) time in which affected population is notified of shelter-in-place order – within 15 minutes from order to shelter-in-place, (b) time in which evacuation of effected general population for an event with advanced warning is completed – within 72 hours from order to evacuate, (c) frequency with which public is initially notified of evacuation procedures, routes, locations or sources of evacuation – every 30 minutes. (pp. 377-393). In (2011) FEMA created a crosswalk from the TCL to the core capabilities list by merging TCL's into one core capability. However, the crosswalk document cautions that "readers should not interpret that the target capabilities assigned to a core capability necessarily capture *the entirety* of what that core capability is meant to address" (FEMA, 2011, p. 1). As a result, research for this project reviews both documents to develop operational considerations.

Once the number of evacuees has been identified, it is beneficial to then identify what zones are involved in creating the overall evacuation plan. Established pre-determined zones must be planned known and mapped to create a common operating picture (COP) quickly. The use of planning zones will "help jurisdictions understand transportation network throughout and capacity, critical transportation needs, resource needs, estimated evacuation clearance times, and shelter demand." (FEMA, 2018, p. 23). Zones or "sectoring" is a general terminology familiar to most local and mutual aid responders. The use of zones also assists different agencies such as police and fire to avoid overlap when assigned to canvass an area for survivors or evacuate an area for protection. Furthermore, a consideration to divide zones into smaller sectors can provide a more detailed information. "Sectors may also be established by using census or enumeration areas, or natural geographic barriers." (OMEP, 2013, p. 3). Additional factors mentioned in the OMEP (2013) plan profiles each sector to contain the following information: (a) summary sheet, (b) map of the sector, (c) boundaries, (d) description of the sector, (e) potential shelter list, (f) facility survey (including health care, special care, and child care facilities), (g) number of households, (h) evacuation routes, (i) sector hazards, (j) special circumstances, (k) emergency

response procedures, (l) special populations, (m) other resources. (p. 3). An illustrated example of a sector map and profile from the OMEP (2013) is provided in Appendix C.

In addition to detailed, defined zones and or sectors another consideration in mapping is that if zone or sector maps are electronic, a hard copy back-up map to include multiple copies should be kept in key locations for use in case of technology disruptions in a disaster. Simultaneous to use of zone / sectors mapping to guide an evacuation an IC must start to make notifications of key personnel and other areas that will need to be considered. An example for fire department notifications is found from the Phoenix Fire Department, (PFD) Standard Operating Procedure to include: (a) activation of Emergency Operations Center (EOC), (b) assignment of a police liaison, (c) communications, (d) media support – Public Information Officer (PIO), (e) establishing a Transportation Branch/Sector for evacuees, (d) communicating evacuation plan and shelter sites to command organizations of all agencies involved. (2014, p. 1). In comparison, NEOs (JP 3-63, 2015) military operations follow an emergency action plan that lists considerations of:

- Possible courses of action for different threat environments
- Location of evacuation sites (landing zones, ports, beaches)
- Anticipated number of evacuees (total number by area) categorized by medical status:

Persons not requiring medical assistance Persons requiring medical assistance prior to evacuation Persons requiring medical assistance prior to and during evacuation

- Persons requiring emergency medical evacuation
- Location of assembly areas and major supply routes

- Location of command posts
- Key personnel (name, location, and desired means of contacting them)
- Description of the embassy communications system, transportation fleet, and warden system
- Quantity of class I (subsistence) supplies on hand at the embassy
- Quantity of class III (fuel)
- Availability of class VIII (medical supplies)
- Standard map products of the local area, with annotations identifying critical landmarks (p. 56)

Notifications and communications throughout the complete progression of the incident is important to the department's operation and reputation. How information is disseminated internally (to responders) by regular briefings and externally (to evacuees) via a variety of media sources is important. Evacuees can be confused or not notified. For instance in the California wildfires of 2018, evacuation messages were not received due to Wireless Emergency Alert (WEA) technology being too slow or not understood. (Sabalow, Ryan, & Luna, 2018). In the 2012 Little Bear Fire in NM, the summary report said "approximately 30 public information officers (PIOs) were assigned to the fire to facilitate communication with the public. Multiple methods were used to provide information including traplines, social media, Inciweb, an information phone line, and daily public meetings" (McCaffrey, Stidham, & Brenkert-Smith, 2013, p. 5). This action was due to a technology failure. Comparable results are also found during the firestorm of Eastern Tennessee affecting the communication failures" and as a result along with radio interoperability failures mutual aid companies were having trouble

locating people to assist with help (Guthrie, Finucane, Keith, & Stinnett, 2017, p. 52). Fire departments as well as emergency managers and public information officers now realize new technologies and social media platforms and applications to cell phones to spread of information to response personnel and evacuee may work or it may not. Back-up communications and information plans must be in place. Back-up plans, an overall communications plan for continuity and regular updates of messaging is just as important so evacuees/responders receive current information throughout the incident's lifespan. Planning must also include messages in other languages. The Ontario Mass Evacuation Plan (OMEP) Annex (2013) identified the following guidelines for evacuations instructions:

- authority for calling for an evacuation
- the time and date the evacuation is in effect
- the nature of the emergency
- delineation of the affected area
- statement regarding the danger in remaining in the emergency area
- instructions on leaving the emergency area including the evacuation route
- the expected length of the evacuation (if known)
- how to register and/or which evacuee centre to go to
- transportation options and assembly points
- where to get more information (p. 14-15).

The above instructions may be pre-planned and pre-scripted for ease of use, and continuity of message. In a technological failure, a role often given to responders will be to notify residents via foot or public address system on an apparatus. If messaging is known throughout multiple operating levels of the incident, the continuity or overall operating plan is maintained. The following account is from the Chimney Tops Two Firestorm, in Tennessee after action review:

Police, fire, and mass transit personnel were sent door-to-door in many areas to evacuate citizens and visitors despite being severely challenged by downed trees; intense fire; downed power lines; and loss of power, landline phones, internet, and cell phone service" (Guthrie et al., 2017, p. 32)

Door-to-door notifications is effective when uniformed public servants deliver a 'trustworthy' message. Contrary to recent examples, a New Zealand document written about evacuation maintains that door to door notification is "resource intensive and slow in delivery, ...field trials have shown that the average rate of door knocking for evacuation warning is 12 houses per team per hour. This is based on teams of two people in a typical urban centre" (New Zealand & Ministry of Civil Defence & Emergency Management, 2008, p. 50). Other research is in agreement and affirms that this method is "not recommended because it will exhaust the number of recourses and personnel that can be used elsewhere" (Hoskins & Lacey, 2016, p. 6).

Responding personnel can, at times be delegated a number of different responsibilities. A study of data sets of the Katrina-Rita disaster in 2005 of 2-1-1- calls for help revealed: "Of 635,983 total 2-1-1 calls during the study period, 65% included primary disaster unmet needs: (a) housing/shelter (28%), (b) health/safety (18%), (c) food/water (15%), (d) transportation/fuel (4%). (Bame et al., 2012, para. 4). As the statistics of unmet needs illustrates calls and responsibilities increase during a disaster. Often, a captain as in the case of the Los Alamos Fire Department sustains more than one role. They can be the initial IC-command, safety officer-

hazard control, and or paramedic-medical. However, the primary responsibilities of the firefighter to captain is to ensure life safety during an evacuation event. Affording for life safety on a mass evacuation involves developing operational procedures for evacuation, sheltering and re-entry tasks. Such procedures are often addressed secondarily by fire departments. The first priority of fire department objectives during a mass evacuation will be focused on stabilization and mitigation of the threat, whether it is a: (a) chemical spill, (b) major fire or (c) hazmat event as well as emergency evacuation of the immediate affected area. Most jurisdictions involved in a large-scale disaster will trigger a recall of all available personnel. Whether or not a local department has staffing to support a mass evacuation, sheltering, re-entry tasks concurrently with first priority objectives is not guaranteed. Mutual aid agreements or reliance on others such as volunteer organizations active in disasters (VOAD) is a consideration in planning. The disaster will require extended operational periods and the safety, rehabilitation of the responders are considerations. A number of factors to address the health and safety of responders are discussed in a United States Fire Administration's (USFA) (2015) publication named "Operational Lessons Learned in Disaster Response to include: (a) limiting operational time, and or policies defining go or no go situations, or (b) for operating in wind speed greater than 39 mph, (c) decontamination of gear, and (d)station resiliency such as generators for power, (e) identified locations for personnel to sleep if stations are overcrowded. (p. 22). As NFPA 1616 (2017 ed.) maintains "the entity responsible for managing the evacuation shall ensure the safety and health of evacuees and responders during all decision making" (p. 30).

In many jurisdictions law enforcement officers (LEO) are primarily assigned in providing information for evacuees, search and rescue efforts, coordinating with volunteer organizations, and moving traffic along evacuation routes. The potential remains that fire personnel could be assigned or assist in any of these tasks. Information for evacuees and operational responders needs to be communicated at many levels. A communications plan with a common message providing frequent updates to address the needs of the evacuees, responders and even social media is important. As several evacuees expressed after the Little Bear Fire (2012), "frustration at not knowing where to go once they had evacuated and at how difficult it was to find this information" (McCaffrey et al., 2013, p. 11). During the evacuation mobilization phase, responders need to prepare for the un-expected and the traffic patterns and access issues that could arise. A key concern during the Chimney Tops Firestorm Two was "roads that were not blocked with downed trees or power lines became impassable due to traffic congestion, which further contributed to the delayed responses of off-duty firefighters, off-duty police officers, and mutual aid agencies reporting to Gatlinburg" (Guthrie et al., 2017, p. 23). Setbacks in traffic flow or congestion needs to be planned for in the evacuation route. Medical response for emergencies as well as care or respite points along the evacuation route to include safe zones is a consideration. As the Target Capabilities list (FEMA, 2007) indicates for specific response the: "plans identifying measures to ensure adequate services (e.g., gas, food, water, tow trucks, medical emergencies, etc.) along the evacuation route(s) should be in place." (p. 390); and "there should be one medical team for every five teams deployed" (p. 270). Additional capabilities to list include:

Plans to coordinate with medical care agencies to provide medical support, supervision, and symptom surveillance of evacuees during a prolonged evacuation (e.g., monitoring and caring for people with pre-existing medical conditions or disabilities and those who may become ill during the evacuation) are in place." (p. 390).

Other international fire agencies recognize the roles and relationships of other entities in the evacuation process. In the London Borough of Hammersmith and Fulham-Emergency Management Plan tasks and teams are defined and assigned based on the scale of the incident. In the plan the London Fire Brigade (LFB) is assigned fire and search and rescue responsibilities in the primary hazard zone. For a common operating picture all agencies involved have defined (Prieto, 2018) gold, silver or bronze commanders which combine on major incidents to form gold, silver or bronze teams crossing departmental lines. (p. 22). The commanders then work on completing objectives to facilitate the emergency management plan for major incidents in this Borough of London. As summarized from the plan, the type and scale of the incident will dictate the level of response. The triggers for shelter-in-place and evacuation are pre-defined within this plan. In (Appendix B) a level plan and response for incidents defined (medium) category as part of the emergency management plan the London Borough of Hammersmith and Fulham.

In the Netherlands in a disaster the "fire service is the linchpin of the disaster response." (Government of the Netherlands, 2018, para 3). The fire chief has oversight of operations. Additionally, the Government of the Netherlands states "the fire service's first duty is to save people and animals...also to put out fires, of course, and conduct tests to find out whether any hazardous substances have been released" (para. 3). Meanwhile, the Netherlands Police ensure that fire and EMS can work, (set perimeters), direct traffic, and safety zones around the disaster area and identify victims.

An incident that caused an evacuation will not only strain a department with an increase of critical operations in a short amount of time, it can also place some members in an unfamiliar operating territory of a mass evacuation event. A mass evacuation/sheltering incident to a fire department presents challenges not found in every day

responses. An operational plan for this type of event calls for assistance from other fields. As Tobia (2016) described in an article airline pilots do not relay on memory or ad-hoc procedures to tackle high risk/low frequency events. The article "recommending a large, readable font, bulleted paper checklist of initial considerations" (para. 5). Likewise, responders do not have a response card for mass evacuation, sheltering and re-entry. Expanding the fire service paradigm of not just conducting building evacuations but including mass evacuation procedures as part of an expanding incident is a proactive approach to protect life safety in an all hazards environment.

The Federal Emergency Management Agency's (2018) shelter-in-place considerations include: "the goal of an evacuation is to move as few people as needed the shortest distance to safety" (p. 11). A jurisdiction should have triggers for when to shelter-in-place vs. evacuation. However, in terminology lies the answer, and depending upon the incident if it is no longer safe to shelter-in-place then the action of evacuation must take place to protect lives. Information will be necessary to educate citizens that no immediate danger exists to in-place sheltering. "Local emergency response agencies/staff including public safety answering points, are trained on local evacuation/shelter-in-place strategies" (FEMA, 2007, p. 391). It is important that public understands and associates the correct action needed for the threat and agencies within the jurisdiction are using like terminology. Another consideration in planning for evacuation and shelter-in-place is that "certain industries may take hours or days to shut down their processes and may require individuals to stay within the facility and shelter in place" (Hoskins & Lacey, 2016, p. 10). Essential personnel could be identified to remain on site, tracked, and monitored as necessary.

Shelter considerations in a large-scale disaster just as fire departments need to be prepared for evacuation, once triggered the government has inferred responsibility to provide shelter. "It is estimated that between five and 20 percent of people will anticipate an evacuation and self-evacuate" (OMEP, 2013, p. 5). Shelter locations need to be ready and identified before the disaster. Accounts after the Little Bear Fire in NM recalled "several resident interviewees expressed frustration at not knowing where to go once they had evacuated and at how difficult it was to find this information." (McCaffrey et al., 2013, p. 12). Interim shelters for the incident can be ad-hoc, however certain shelter locations can be identified by zones, sectors maps as a pre-event preplan. Shelter predetermined by sector as a pre-plan or ad-hoc locations as the incident unfolds have to be included and updated in the communications plan to both evacuee and responders.

In a large-scale or mass evacuation, as recommended "there should be room for all individuals moved out of the evacuation zone, however, there is reasonable doubt that 100% of the individuals will stay at the sheltering facility" (Hoskins & Lacey, 2016, p. 18). Most evacuees may stay in the area with friends, family or take a vacation, however once evacuated a jurisdiction needs to plan for space for sheltering. According to NFPA 1616 (2017 ed.), shelters should be a safe, secure environment, provide basic for needs for people and pets to include food, water and first aid, support for cultural and spiritual needs and track evacuees. (p. 10). Information on shelter location should be part of the event communication plan and regular updates on status should include open, standby, closed or full shelters should be known to citizens and responders. The "length of time a shelter may be needed should be estimated in planning" (FEMA, 2018, p. 36). The New Zealand Civil Defence Ministry & Emergency Management proposes the following for shelter planning: (a) ad-hoc transport, (b) shuttle services, (c) phone banks, (d) security; signage, (e) staffing levels, (f) traffic control (g) waste

management, (h) and access to health care. (New Zealand & Ministry of Civil Defence & Emergency Management, 2008, p. 63).

In mobilization of evacuees from their residence to shelter the task of keeping track of evacuees is an operational need. Evacuees could be registered and tracked during the mobilization and or shelter phase until the end of the incident. In addition, responders when canvassing neighborhoods needed a way to document non-evacuee action. In 2016 FEMA developed tools to aid evacuation and evacuee tracking. The National Mass Evacuation Tracking system (NMETS) provides both paper and computer-based options. People, pets and luggage can be barcoded and tracked throughout the incident. The Paper-based Evacuation Support Tool (PBEST) is part of NMETS and is an easy paper system when technology can fail. Evacuee tracking systems are available to jurisdictions at no cost.

Coordination with other support partners such as police to provide for security or medical standby depending upon needs of shelter will have to be organized. Neighboring jurisdictions to include regional resources will be known as 'host' communities. Other organizations such as the Red Cross, has extensive disaster support and shelter experience. According to the Massachusetts Governor's office, "the American Red Cross maintains shelter agreements with more than 50,000 facilities nationwide" (Governors Guide to Mass Evacuation, 2014, p. 18). Common nomenclature of 'local shelter' usually falls to a large place of assembly such as a high school or church, however, it may not be the ideal solution depending upon need but may be fine for a short-term shelter solution. The Red Cross also ensures that 'spontaneous' shelters are conducted in a safe manner.

The Federal Emergency Management Agency (2017) has typing of shelters in place that is currently under draft (March 2017) review. The shelters are classified Type I-IV with I, being the largest in square footage, while square footage ranges from 20 to 40-60 square foot per person. The shelters are classified for expected hours of operations total due to an event and range for short term to emergency to mass care facilities. A shelter manager has oversight with staff assigned as assistants as needed who work on a 24-hour operational period (12-hour shifts) which depends on duration and size typing per FEMA. Example of FEMA Short-Term Shelter typing sheet can be found in Appendix D.

Published research on the roles of fire service regarding shelter operation is uncommon. NFPA 1616 (2017 ed.) has an extensive list of shelter procedures to be considered and in a disaster. If not involved in priority incident mitigation a responder or a responding mutual aid department could find the NFPA 1616, (2017 ed.) list beneficial. However, in an emergent situation a fire officer who is medically qualified might begin certain roles as a stop gap measure until other agencies or the Red Cross arrives. These roles might include: (a) shelter incident command or shelter manager, (b) medical and mental health, (c) information and communications, (d) evacuee registration, (e) security and access control, (f) fire and life safety – means of egress for shelter activities. ("NFPA 1616-17-PDF.pdf," 2017 ed., p. 10). Similarly, the NEO joint military operations a medical section is tasked with the following:

- Determine if an evacuee requires emergency medical treatment.
- Perform emergency treatment as required or coordinate with a local safe haven country hospital to perform the treatment.
- medicine.
- Advise the temporary safe haven OIC on hygiene and preventive
- Inspect food and water obtained from local sources.

- Evaluate the general health of the evacuees, particularly in regard to pregnancies and the possibility of communicable diseases.
- Provide veterinary support for pet health care as required (JP 3-68, 2015, p. 140).

According to NFPA 1616 (2017 ed.), the qualifications for who should be setting up initial shelter personnel include: a local first responder with basic medical training and ICS 100, introduction to incident command, and ICS 200 incident command system for single resources and initial action incidents, or local law enforcement, or private security, all with a background check. Red Cross and public health department are indicated for in-shelter medical duties only. ("NFPA 1616-17-PDF.pdf," 2017 ed., p. 37). The standard, NFPA 1616 also has published a set of forms in the appendix as a resource for a jurisdiction to aid with standing up a shelter. Some examples of sheets include: (a) shelter management, (b) shelter resource needs, and (c)shelter resiliency survey sheets.

Contingency plans for shelters should expand to include regional shelter and secondary plans for any shelter relocation due to an expanding incident. Also, an increased need for more responder shelter due to increased local staffing and to consider incoming mutual aid resources should be a factor in planning. As an article from the Cerro Grande Fire (2000) was reviewed, residents from Los Alamos, first evacuated to White Rock, then had to evacuate again. According to an account from Captain Repass: "we had people sitting in their driveways for a couple of hours before they could even pull out onto the roadway of town." Furthermore, according the author, of the article the White Rock evacuation was estimated to take seven hours. (Eillot, 2001, p. 3). The first shelter or evacuation location should allow a cushion for an expanding incident.

Trigger points for a re-entry process will be begin as soon as the evacuation is complete. According to (OMEP, 2013) considerations to allow re-entry are: (a) the threat has been resolved, (b) access to community is possible, (c) infrastructure is safe, (d) safety hazards mitigated, (e) stable weather, (f) services such as water, power, sewer, food, and security can support population returning. (p. 17). The use of zones or sectors becomes an is important factor during the re-entry process. Sharing information on when, and how the re-entry will commence with all concerned is beneficial to the process. It is recommended not to let all evacuees to return at once and "the evacuated perimeter should be opened in segments starting with the perimeter furthest from the incident location" (Hoskins & Lacey, 2016, p. 19). Law enforcement needs to present and may require access points, or check identification to allow re-entry, as well as to discourage looting in affected areas. Responders along with other entities may be assigned to conduct damage assessments. In addition, FEMA (2018) mentions that work to confirm the loss of life information along with coordinating multiple agencies to ensure threats to life safety aren't present remains a priority during this phase. (p. 38). Standards such as NFPA 1616 (2017 ed.) affirms in section 6.7.1 to 6.7.3 Transition to Re-Entry that the area(s) need to be safe, and the is infrastructure must be ample enough to support the return of evacuees. In the appendix of NFPA 1616 (2017 ed.) recommends for the importance of a communication plan for re-entry to assist in operations, and when possible have businesses enter first to support the returning population. (p. 33). Further research operational considerations for re-entry include the demobilization of staffing and resources and to restore forces to response readiness. Additionally, once re-entry has been achieved "incident management should go through a formal debrief process and decide what techniques worked best, and what could be improved throughout the evacuation process" (Hoskins & Lacey, 2016, p. 13).

The literature provides evidence that the primary responsibilities of the fire officer in an evacuation, sheltering and re-entry during a mass evacuation event are not easily defined and could be as varied as the experiences of the experts offering their opinions. The literature review inferred tasks based on: (a) published actions of responders in after action reviews or research, (b) a fire organization role within FEMA, and (c) and examining information published by evacuation annexes or jurisdictional plans as general guidelines with the type of organization or industry when looking at field assignment positions. The literature offered valuable considerations for the Los Alamos Fire Department in strategically developing a draft operational procedure that will fit its organizational mission statement and protect life safety of citizens and firefighters operating in a mass evacuation event.

Procedures

On August 31, 2018 to September 30, 2018 an internal survey (Appendix H) via SurveyMonkey was distributed to approximately 145 members of the 2018 ~ <u>fire@lacnm.us</u> email address to all personnel in the Los Alamos Fire Department (LAFD). Approximately 10% of that number or 14.5 personnel rounded up to 15 responses for civilian and non-operational positions. The purpose of this survey was to assess baseline awareness of mass evacuation procedures within LAFD and to gather additional data in answering the four research questions.

On September 5, 2018 until September 30, 2018 an external survey (Appendix I) on Mass Evacuation and Sheltering via SurveyMonkey was posted to approximately 1400 members of the International Association of Fire Chiefs (IAFC) Executive Fire Officer (EFO) section. Additionally, a post was made through IAFC Knowledge Net a forum (Appendix J) as a request for sharing information on existing Standard Operating Procedures (SOPs) from other fire professionals across the country. The intent of the external surveys (Appendix I) was to obtain data from other fire departments or from (Appendix J) what procedures existed in relation to the research topic.

On September 10, 2018 an email with a cover letter of introduction/re-introduction of the researcher which included seven questions to solicit a response by September 23, 2018 was distributed to seven respondents or Los Alamos County unified action partners. The respondents were selected based on the positions within their organizations, and or roles at the EOC, and are action partners that LAFD would work with in a unified manner at large-scale incidents and drills. Initial email questions with associated cover letter can be found in (Appendix E). The respondents (LAC unified action partners) were invited to contact the researcher with questions and it was stated that if the email was returned with answers, the researcher may contact the respondent with any necessary follow-up questions. On September 24, 2018 a follow-up letter (Appendix F) was sent to email addresses as a reminder of those LAC unified action partners who had not responded. The email was sent to: (a) Los Alamos County Emergency Manager, (b) Los Alamos County Police Department Commander of Operations, (c) Los Alamos County Attorney, (d) Los Alamos County Risk Manager, (e) Los Alamos County Public Information Officer (PIO), (f) Los Alamos National Lab – Director of Emergency Management, (g) Los Alamos National Lab – Director of Security Forces.

An examination of an analysis of the current LAFD Fire Chief Directives (FCDs) internal and internal documents that could reveal current responsibilities and or roles of the firefighter assigned during an evacuation of Los Alamos, to include the mitigation of the event. This review included looking at a task assigned, and if the mention of mass evacuation is found in relation to that task, or if a mass evacuation, sheltering or re-entry language was already incorporated. A copy of the current edition of NFPA 1616 (2017 ed.) *Standard on Mass Evacuation, Sheltering* *and Re-Entry Programs* was obtained to research the recommended mass evacuation procedures, as well as, relevant FEMA documents such as; National Response Framework (NRF) 2016 (3rd ed), Core Capability Development Sheets – Response Mission Area, FEMA 2018 Planning Considerations: Evacuation and Shelter-in-Place (draft), also in conjunction with U.S. Department of Homeland Security's Target Capabilities List (2007) along with other external documents were also reviewed. The data analysis from the documents assisted in providing data for the four questions. Internal and external document analysis for data pertaining to mass evacuation procedures can be found in (Appendix K).

Information gathered from: (a) survey results (Appendix H; I), (b) email LAC unified partner questions (Appendix E), (c) document analysis found in (Appendix K) produced data to identify any trends, patterns or barriers. Information from international fire agencies and the military services on evacuation operations was searched as well as county evacuation annexes via the internet for any of operational procedures relating to the applied research project.

The limitations in this study were because the survey and or email responses for the research were insufficient in from key personnel within the LAC jurisdiction. An assumption by the author was that the questions were not clear as written or did not solicit interest. Another assumption was as draft documents are finalized and new information becomes available related to this research topic some of the original content may change.

Results

The first research question one asked: (a) What are the laws, regulations, and standards that local and state agencies use for mass evacuations: An analysis of documents of New Mexico Emergency Operations Plan and the Los Alamos County Emergency Operations Plan (Appendix K) along with associated New Mexico state statutes (Appendix G) was conducted. Also, email questions to unified action partners (Appendix E), questions and responses provided data was investigated. Additional data from a discussion (M. Vigil, personal communication, September 6, 2018) was also obtained. The NFPA 1616 (2017 ed.) standard references that evacuations are voluntary in nature, however, case law that illustrated that police powers exist in an emergency situation as cited from (p. 39) as (D.G. Tucker and A.O. Bragg III, "Florida's Law of Storms: Emergency Management, Local Government, and the Police Power," Sternson Law Review 30 (2001):837-873 and the Thames Shipyard and Repair Company v. The United States).

The New Mexico State Emergency Operations Plan (NMEOP), (M. Vigil, personal communication, September 6, 2018) confirmed information that the State of New Mexico (NM) does not have a mandatory evacuation law. M. Vigil corroborated "in NM, we can't order a mandatory evacuation, only recommend it". The Governor of the State (NM) can enact emergency powers to facilitate the mitigation of the incident under the "All Hazard Emergency Management Act", [12-10-1 et. seq. NMSA 1978]. The law "which establishes the state's emergency management program and powers...and confers emergency management powers upon the Governor and the State's governing bodies". (NMEOP, 2016 p. 2). The NMEOP recognizes that if an incident is deemed catastrophic, then there is a belief held that "people have come to expect, and governments have assumed the responsibility for the provision of temporary emergency shelter and care for victims". (NMEOP, 2016, p. 155). While the decision to call for a mass evacuation is that of the local jurisdiction's, if overwhelmed the local jurisdiction by request can activate the State NM-EOC which will provide support in the form of Emergency Support Functions (ESFs). The state plan will initiate ESFs #1, #6, #8, #13, #15, and military support for a mass evacuation incident. (NMEOP, 2016 p. 31). ESF's are defined by the National
Response Framework as: #1-Transportation, #6-Mass Care, Housing and Human Services, #8-Public Health and Medical Services, #13-Public Safety and Security and #15 External Affairs. The state can utilize adopted statues to receive aid or even initiate an evacuation by use of the Riot Control Act and Public Health Service Act. (M. Vigil, personal communication, September 6, 2018). A list of NM Statues and adopted federal acts relating to disaster assistance adopted by the NM state legislative assembly as public law are found in (Appendix G). An email (Appendix E) was sent out to LAC unified action partners asking what laws, regulations or standards relate to mass evacuation incidents. Two of the participants did not respond to that question. There was a response rate of 71%. The data showed four out of the five partners who responded referenced the local Charter for the County of Los Alamos, Article 1, Section 103, Home Rule Part 1, Charter II 203.3 Emergency Ordinances in addition to documents found in (Appendix G).

Two consensus standards have been developed recently to address mass evacuation. The first was being the NFPA 1616 (2017 ed.) *Standard on Mass Evacuation and Sheltering* was published in 2017 for the National Fire Protection Association (NFPA). The second standard exists internationally as the International Standards Organization (ISO) released in 2014, ISO 22315 Standard for Mass Evacuations. This standard "... covers planning for mass evacuation in order to gain effective response during actual evacuation." (Shaw, n.d., para. 5). The internal survey (Appendix H) questions of LAFD members and external fire departments nationally survey (Appendix J) indicated a need to increase awareness of the NFPA standard and procedures that can assist in a mass evacuation emergency. The question on both surveys read (Q8 National, Q8 Internal): Are you aware of any NFPA standards that can provide recommendations in a Mass Evacuation / Sheltering event? The results are: Table 1: Is a NFPA standard available to guide a mass evacuation incident?

Department	Yes	No	Unsure	Totals
Members				
National	13.82% (21)	53.29% (81)	32.89% (50)	100.00% (152)
Local	20.00% (6)	30.00% (9)	50.00% (15)	100.00% (30)

The Occupational Safety and Health Association (OHSA) Standard number 1952.20 applies to safety and health, and was adopted by New Mexico in 1975, as a regulation to address protective clothing worn during emergencies. The Los Alamos Department FCD 802 Safety Clothing and Equipment complies with the OSHA standard and outlines the use of personal protective equipment (PPE), care and inspection in a variety of response situations to include EMS, fire, wildland, hazmat, traffic and general station duty. Presently, LAFD FCD 802 does not remark on extended operations of a mass evacuation nor the extent of ensuring self-sufficiency for responders. In addition, LAFD FCD 804 Rehabilitation focuses on routine responses vs. preparing for an extended event. General IC guidance exists which mentions that any event over a one-hour operational period needs rehabilitation. Currently, LAFD doesn't not have an FCD addresses staffing and extended operations but defaults to ICS, NIMS.

The second research question asked: (b) What operational procedures do other fire agencies and (LAC) unified action partners have in place to respond to mass evacuation emergencies? An extensive search via the internet along with informal forum post on the International Fire Chief Association (IAFC) (Appendix J) for existing fire agencies to share any SOPs in relation to mass evacuation produced little to no data. As a result of the search a broad array of documents were reviewed to include: (a) documents from different organizations FEMA, NFPA, Military Joint Operations (NEOs) (b) general evacuation plans from other jurisdictions, (c) international fire department documents, and (d) learned from past evacuation events. The data revealed general trends in areas notifications, on-going communications, and coordination were essential factors to consider. An evacuation sector procedure from Phoenix Fire Department (M.P. 201.05E) was discovered. This procedure demonstrated evacuation considerations which included: (a) command responsibilities with an emphasis of working in a specific area to avoid duplication of effort, (b) procedures for on-site notifications, and (c) the documentation of non-evacuees. FEMA identified critical considerations to include terminology in public messaging, tracking, and zone approach methodology of evacuations. (FEMA, 2018, p. 17). Hoskins and Lacey's (2016) research that cited Abelman (2007), that "if emergency planners want the public to act in a certain manner, it is imperative that information is accurate and specific." (p. 15).

In examining what operational procedures do LAC unified action partners have in relation to mass evacuation examines where other departments are locally. The LAC Emergency Operational Plan – Evacuation Appendix 5, specifically guides other departments within the county and recommends when and how the EOC is activated for an evacuation emergency. This plan does not outline fire department operational procedures but mentions the fire department has or shares responsibility in evacuation or mass care tasks. Information on pre-scripted messages from the Public Information Office are provided. A copy of LANL Emergency Procedures and Protective Actions No. P1201-4 (2010) is the guiding document for laboratory personnel and visitors in the event of an emergency. In addition, a draft copy of Santa Fe County's evacuation annex was obtained but has not been implemented.

The third research question asked: (c) What are the responsibilities and resources required of LAFD to support a mass evacuation and sheltering emergencies? During a mass

evacuation, the EOP (2017) of Los Alamos County has an appendix-three for Evacuation. LAFD is designated as a primary agency with responsibility in an evacuation along with county manager, police department, public works/traffic and atomic city transit departments. It is mentioned under the *Concept of Operations* that a system of tracking of evacuees will be performed, and medical support shelters will be provided at a local, state, federal or tribal level. The respective agencies possess the authority to evacuate and will initially manage an area evacuation. The LAC-EOC will be coordinate mass evacuations through the operations and logistic sections, and may involve door-to-door, mobile sirens, public address systems and tagging of homes. (LOC-EOP, 2017, pp. 5-Evac Annex). The LAC-EOP asserts that police and fire will not evacuate, rescue, shelter animals and owners must be responsible. Other data indicates that "sixty-five percent (65%) of American households have pets, which includes a variety of animal species." (FEMA, 2018, p. 20). Several research studies (FEMA, 2018, p. 16), (JP 3-68, 2015, p. 130), (OMEP, 2013, p. 5), (FEMA, 2007, p. 391) shows barriers to evacuation often include factors of being an older adult and pet owners. According to LAC-EOP a nonevacuee must fill out a liability release if they refuse to evacuate and this may involve the role of a responder. The literature review (Hoskins & Lacey, 2016, p. 6), (McCaffrey et al., 2013 p. 3) (Guthrie et al., 2017, p. 26) showed a common role or for a firefighter in a mass evacuation, if not involved in hazard threat stabilization would be notification by assist in door to door evacuations, use of public address systems and providing public with needed information. Search and rescue procedures are defined for the fire department as it relates to structural firefighting or an immediate life threat for emergency evacuation as in LAFD FCD 415 Incident Command and Blue Card Command Manual and FCD 414 Truck Company Operations were reviewed in this

process. Another role a firefighter could be tasked with is if emergency medical qualified they could provide aid to those in transport or moving of those not able to care for themselves.

Both surveys (Appendix H; I) had a question asking about potential roles or tasks assigned in a mass evacuation incident. The data is provided is minus initial mitigation roles of fire control, hazmat, and search and rescue which all scored high on both surveys. Respectively, (Q5: Appendix H) and external survey (Q6: Appendix I) were compared for the top five answers of potential roles or responsibilities in a mass evacuation.

Table 2: Potential top five roles and responsibilities in a mass evacuation incident not including initial mitigation answers (i.e. fire, hazmat, search).

Department	Top five answers ranked from one-through five with five having lo	west
Members	percentage of the National and Local response in each grouping	

National	1. Coordinate with mutual aid, CERT teams, and the Red Cross (86.1%)
	2. Medical support of evacuees during exit and in shelters (83.5%)
	3. Medical support of non-evacuees and responders (80.9%)
	4. Damage assessments after the event (72.3%)
	5. Inform public of shelter sites and evacuation routes (69%)
Local	1. Medical support of evacuees during exit and in shelters (93.3%)
	2. Assist with evacuation (door-to-door notifications, apparatus PA (90%)
	3. Medical support of non-evacuees and responders (90.00%)
	4. Triage of residences before event (wildfire, flash flood) (90.00%)
	5. Inform public of shelter sites and evacuation routes (83.3%)

By having no mention of mass evacuation and sheltering operations responsibilities could leave a gap in operations for a fire department in which NFPA 1616 (2017 ed.) may provide a framework and guidance. Data from reading after action incident reports of the (2016) Chimney Top Firestorm, the (2012) Little Bear fire and comments fire department survey express a sense in a large-scale incident a local force will be overtasked. As one respondent agrees from (Appendix H) internal survey "the initial response force is going to be too overwhelmed with incident mitigation to be worried about evacuation...further expressing that this should be assigned to other entities".

Locally sheltering roles in general are guided in the LAC-EOP Mass Care and Shelter Appendix 4. This document does not apply a primary responsibility for sheltering to the fire department. Agencies identified to support this effort is LAC Emergency Manager, Red Cross and other established local groups such as: (a) Los Alamos Visiting Nurses, (b) NM Human Services Department, (c) Volunteers Active in Disaster (VOAD), (d) United Way, (e) Civil Air Patrol, (g) Los Alamos Civil Defense Fire Brigade to name a few. In the Mass Care and Shelter Annex 4 of LAC-EOP (2017), it defines medical support and maintains that LAFD will provide basic and advanced life support, and ambulance transports from hospital and shelter locations. (pp. 8). LAFD FCD 528 Medical Evacuation addresses guidelines for medical evacuation of Los Alamos County in the event of a catastrophic emergency. This FCD defines roles of medical branch, medical evacuation strike team, transport officer etc. Also, the LAC-EOP plan indicates decontamination of evacuees/patients may be needed. LAFD's and LANL Hazmat teams respectively will be heavily involved in the direct operations and share this responsibility for the jurisdiction of Los Alamos. Currently, LAFD FCD 424 Hazardous Materials Response will activate and assist in the goal of life safety and or rescue by identifying protective action of isolation/evacuation distances or perimeters. Mass decontamination involves removing contamination form a large number of victims in life-threatening situations. The LAC-EOP does

state that "time constraints may limit the ability to obtain state and federal resources, so county resources could likely be exhausted quickly or severely stressed." (Los Alamos County, 2018, pp. 5-Mass Care Annex). Mutual aid companies should be considered to support evacuations of non-technical areas. In addition, NFPA 1616 (2017 ed.) concurred that "allocation of resources" is an important planning element." (p. 30). In consideration of resources, it is important consideration to understand what an adjacent or a host jurisdiction can provide in aspects of personnel, shelter, communication centers. In discussion of the 2011 Los Conchas Fire evacuation, a neighboring community to Los Alamos County was ready to receive 14,000 people, but it is estimated that only 300 people used the shelters. (M. Vigil, personal communication, September 6, 2018). An additional shelter consideration mentioned is that shelters should have power banks for electronic equipment such as cell phones and computers. This social aspect is important for evacuees to connect to family and receive information about the incident.

Re-entry roles and responsibilities in general terms are defined through the local Emergency Operations Plan. Responders are be prepared for: (a) influx of people, (b) cordon off unsafe areas, (c) be aware of changed traffic patterns, (d) coordinate with all agencies. (Los Alamos County, 2018, pp. 10-Evac. Annex). Other documents (FEMA, 2018, p. 42), (NFPA, 2017 ed., p. 13), (NRF, 3rd ed., p. 30) (Hoskins & Lacey, 2016, p. 12). in analysis suggest that fire personnel along with other agencies could be involved with infrastructure assessments before re-entry to ensure safe, livable conditions. Currently, LAFD does not have a defined process to conduct formal assessments.

The Emergency Management Office of LAC is in the process of updating information for the community in the form of a presentations to the citizens for an evacuation process. By providing

evacuation zones information. LAC-EM also publishes information on the internet encouraging the citizens to develop go kits or to begin to be prepared and self-reliant in preparing for a disaster. In addition, a list of residents who need assistance is in the process of being gathered. Other organizations in the community like LANL rely on internal procedures such as No. P1201-4 LANL Procedures and Protective Actions document which "purpose is to provide guidance for Laboratory personnel and visitors in the event of an emergency situation" (p. 1). This includes a site-wide evacuation for the Los Alamos National Laboratory (LANL). The National Nuclear Security Administration (NNSA) and the Department of Energy (DOE) has oversight of LANL operations and are to comply with Department of Energy Order 151.C "Comprehensive Emergency Management System." This system established Emergency Protective Zones (EPZ)s and Protective Action Recommendations (PAR)s for LANL. In a letter to the county manager dated July 21, 2014, and due to the proximity of LANL-LAC it was encouraged that LAC establish sectors within their current resident CodeRED system and that "NA-LA (Los Alamos Field Office), and LANL stand ready to assist in any associated subsequent training or understanding of the communication of PARs and sectors to county officials and residents, as necessary" (Lebak-Davis, 2014, para 4).

Locally, responders are utilizing the incident management system, and incident command system in conjunction with Blue Card Incident Command (a system developed out of Phoenix Fire Department) which will transfer to a unified command due to the expanding incident. As stated in NFPA 1616 (2017 ed.) "all persons involved in the operation must have basic ICS training" (p. 30). A survey question to fire departments members internal (Appendix H) and national (Appendix I) asked: In the absence of an operational procedure where do firefighter's receive guidance as to the next best source of information as how to proceed in a mass evacuation? The results (Table 3) indicated that unified command, in conjunction with team at

the EOC team would be driving tactical tasks assigned.

Table 3: How are tasks assigned in a large-scale incident?

Answers selected	National FD	Local FD
Direction from team at EOC or Unified Command	60.93% (92)	73.33% (22)
State or Local Written Plan	18.54% (28)	16.67% (5)
Ad-hoc events are complex, dynamic, difficult to plan for	15.23% (23)	
Other/Unsure	5.30% (8)	10.00 (3)
Totals	100% (152)	100% (30)

In summary, although the literature review did not define roles and responsibilities specifically for fire department members across the board trends were noticed both in literature and survey results. The data analyzed identified tasks a fire department would be involved in include: (a) mitigation and stabilization of primary threat, (b) search and rescue, (c) notification and information to the public, (d)medical support and emergency response throughout the incident. The first survey (Appendix H) was conducted internally with the LAFD fire department members to assess the baseline operational knowledge of procedures during a mass evacuation. The second survey (Appendix I) to fire department members nationally to assess if operational procedures exist and to evaluate baseline awareness of mass evacuation concepts.

The fourth research question asked: (d) What barriers have been identified by other agencies for operational procedures for mass evacuation emergencies? Email question(s) to LAC unified action partners (Appendix E) attempted to provide data and insight as to barriers

that exist. Staffing or available personnel to assist in the evacuation is questionable and mentioned as the primary barrier or reason why an operational procedure has not been created. This is in contrast to an expressed informal expectation of other departments or divisions within the county that eluded to the fire department having a 'larger' force, therefore more resources (personnel) than other response agencies in the area to aid the evacuation process.

Another barrier mentioned was operational assignments transpire through unified command or EOC teams as the incident unfolds and the potential writing a specific procedure may hinder IC's operational flexibility or decision-making process. The essence of the unrealistic goal writing procedure for every operation was mentioned. This is contrary to the guidance given by NFPA 1616 (2107 ed.) to have roles and responsibilities clearly defined, assigned and accepted by especially those members in the working group developing the overall plan for the jurisdiction. (p. 37). The internal survey results for fire department members (Appendix H) and the national survey results for fire department members (Appendix I) where asked about procedure awareness for mass evacuations. Specifically, question number eight in each survey asked if a NFPA standard existed which that can provide recommendations for operating at a mass evacuation, sheltering event for members of the fire department. The respondents provided the following results:

Table 4:	Does a NFPA s	standard exist to	guide actions	in a mass	evacuation event?	

Department	Yes	No	Unsure	Totals
Members				
National	13.82% (21)	53.29% (81)	32.89% (50)	100.00% (152)
Local	20.00% (6)	30.00% (9)	50.00% (15)	100.00% (30)

The analysis results on evacuation zones methods within the LAC jurisdiction revealed two systems of zones are in place that could create a barrier to a common operational picture that exists: LANL and LAC follow their own system of zones respectively. This represents a barrier because LAFD is required to operate throughout the jurisdiction whether the location is LANL or LAC. In addition, the LAC-LANL EOC when activated would potentially be using two systems depending upon the incident. In addition, any zone collectively is not sectored and or contains detailed information such as; shelter locations, and populations that need transport, or assistance. Identifying these factors through pre-planning can assist in the facilitation of evacuation, sheltering or re-entry tasks. Additional barriers to task operations within evacuation incident documented throughout this project include: (a) residents not obtaining information, (b) residents refused to leave, (c) delays in evacuation (underestimate of time needed), (d) unmet need to track evacuees in place and to secure evacuated area which may relate back to staffing.

Action research, data collection, and examination enabled the development of a (draft) operational procedure (Appendix L) which will address the roles and responsibilities of the fire officer, resources required of LAFD, to direct or support operations in a mass evacuation, sheltering, and re-entry event for the Los Alamos Fire Department. This (draft) operational procedure will also be utilized as a discussion point for a future working group of unified action partners to shape the jurisdiction's common operating picture.

Discussion

A successful response to a mass evacuation emergency requires a plan and the plan may very well be embedded in an IC's experience, or not, or live in the inter-communication of the team at the local EOC. How the plan unveils to the field through communication so that a clear operating picture is viewed in every responders' mind can be a measure of response effectiveness. This measure can prove difficult. For example, it is possible that critical tasks and performance measures such as those mentioned in the FEMA (2007) *Target Capabilities List*, response mission: citizen evacuation and shelter-in-place section (pp. 287-403) are utilized at the EOC level, but these objectives may not be disseminated to operations field personnel.

This analysis endeavored to find what roles and responsibilities, barriers, regulations or laws a firefighter may have or need to adhere to in a mass evacuation incident, then design a procedure to assist this process. A local jurisdiction can issue an evacuation order or warning and only recommend actions. The State of New Mexico does not have a mandatory evacuation law (Appendix G). Responders can only urge someone to leave, but more likely the closeness of the perceived threat will encourage self-evacuation. Research and data and analysis from documents (LAC-EOP (2017), mass care and shelter annex pp. 8; LAFD FCD 526 Medical Evacuation; survey(s) of Appendix I; J) harmonized that a definite role of responders will be to help those most in need, whether for an older adult or those who need medical transport or assistance to a safer location. Notification and information during this phase of mobilization for evacuation is key and it is important that if responders are involved, they have answers to provide. An ongoing communications plan to not to potential evacuees but transparency of communication at all levels to all entities is important to guide operations overall. Research of (FEMA, (2018), pp. 35-36; JP 3-68, (2015) pp. 93-94; OMEP, (2013), pp. 16-17) stresses the importance of a robust communication plan that includes options if a system fails.

An underlying concept of some local fire personnel (Appendix H) and or other local unified action partners (Appendix E) respondents is that the fire force will be involved in a mass evacuation process, only if not tasked with mitigation or stabilization of the threat. Different data

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(Appendix I; Appendix H) support this belief that personnel may not be available to help in an evacuation or 'stretched thin to do so'. However, the LOC-EOP (2017) assigns evacuation and mass care as a primary responsibility. (P. 30). Furthermore, the data illustrated nearly 65% of the department respondents (Appendix H) at LAFD viewed an operational procedure as a benefit. Research analysis of documents (Hoskins & Lacey (2016); FEMA (2018); JP 3-68 (2015); NFPA 1616 (2017ed.) identified that entities need to plan for evacuations by having procedures and tasks identified. This finding is significant because although a procedure is viewed as a benefit, of equal influence is expressed disadvantage that fire personnel may not be implementing any procedure due to staff not available. The procedure needs to consider the potential of local and mutual aid personnel audiences, or that if a procedure is internal it needs to be shared as necessary. If mutual aid utilized, the importance of having zones and sectoring with detailed information becomes important to maintain a common operating picture with all other working entities.

A difficult barrier in identified LAC jurisdiction is that two zone system exits within the county borders. Other research all supports the use of zones and detailed sectors. (FEMA, (2018), p. 23; OMEP, (2013), p. 3) all agreed with the inclusion of local demographics in zoning methods. The discrepancy within LAC jurisdiction that was identified indicates that further research, and more importantly further discussion within the working group is needed. An unexpected result of the comparison data between what national fire personnel vs. what local fire personnel was shown (task no. one) to as potential role in an evacuation. (Refer to Table 2, p. 41). The difference may be contributed to local factors – Los Alamos is isolated by geography, and traditionally has not relied on mutual aid or other entities in the past. The community, and to some extent the fire department has a strong inherited sense of taking care of itself. The nearest

city is Santa Fe, NM approximately forty-five minutes away. This is shown in potential role data ranked number one by LAFD fire personnel is notifications door-to-door, or PA system use for the public. Nationally fire departments (task number one) is interfacing with other mutual aid, other entities, such as CERT teams, or the Red Cross in a large-scale event. The dichotomy lies in the data in that local fire personnel indicate the number one role is potential informing the public and assisting in evacuation, but then also indicate only if not assigned to mitigate the primary threat. Roles and responsibilities of responders vary with the incident, are often not defined in a mass evacuation sheltering event due to lack of staffing, or it is expected to be handed off to another fire department because of incident priorities (OMEP, (2013), p. 15; FEMA, (2016), p. 12; NFPA 1616 (2017 ed.), p. 12; Hoskins & Lacey, (2016) p. 14). This concept further demonstrates the responsibility of each fire department to have a procedure in place so others not familiar with their jurisdiction can have local considerations available.

Recent research in FEMA (2018), but not considered in the survey (Appendix I; J; E) data was the topic of responder self-care and considerations in extended operations such as (a) staffing shifts and rotation, (b) housing, food, and fuel for local and mutual aid forces, (d) evaluation of fire station condition during a large-scale event. (NFPA (2017ed.) [5.10.1], p. 12; U.S. Fire Administration, (2015), pp. 17-20). In addition, the utilization free evacuee tracking tools developed by FEMA named the National Mass Evacuation Tracking System (NMETs) and Paper-based Evacuation Support Tool (PBEST) are available to a jurisdiction.

A limitation in the overall findings of this applied research were based on inferential examination of data which was influenced by the low rate of return in the survey tools and it may yield partiality. The results of this applied research project were varied, but overall could support the information examined in the literature review and document analysis to develop a procedure for a mass evacuation, sheltering and re-entry emergency Additional research and reviewed lessons learned on events indicate that this work is dynamic, incidents are complex or varied and need to consider local factors. Local factors are best determined through vetting procedures and information though the formation of a working group of response partners (FEMA, (2018), p. 3; NFPA, (2017 ed.), p. 17). Ultimately, the working group members who share, review and agree upon all operating procedures would incorporate procedures to pre-plan for a common operating picture for a mass evacuation, sheltering and re-entry event for the LAC jurisdiction.

The mindset of the fire service is to provide for life safety, incident stabilization, then property conservation. Operations such as mass evacuation, sheltering and re-entry are often addressed during or after incident stabilization in the fire service. Research on recommended procedures (NFPA (2017 ed.), p. 12 ; Phoenix Fire (2014), p. 1; FEMA, (2018), p. 1; Appendix I; Appendix J) and recent events the Little Bear Fire (2012); Chimney Tops Firestorm Two (2017); Thomas Fire, CA (2018); Hurricane Florence (2018); Dresden, Germany (2018) are dictating the fire service needs to take a proactive stance to operations during mass evacuation. Documentation and constructive analysis of fire department procedures on incidents compared to the recommendations of NFPA 1616 *Mass Evacuation, Sheltering and Re-Entry* needs further exploration. In the meantime, the implementation of a draft operating procedure would allow local fire personnel and mutual aid companies to have a reference for an event not experienced in daily operations.

Recommendations

The following are recommendations are based on the data. The first recommendation was: an internal review process of the LAFD FCD Mass Evacuation, Sheltering and Re-Entry will begin which outlines the draft operational procedure.

The second recommendation was to appoint a program manager for LAFD mass evacuation, sheltering and re-entry which duties shall include: (a) increase awareness of the evacuation sector operations for LAFD personnel, (b) liaison with LAC unified working group and neighboring communities to ensure roles and responsibilities assigned in a mass evacuation incident are clear and understood with the jurisdiction, (c) maintain the LAFD FCD mass evacuation, sheltering and re-entry, (d) transition to the Evacuation Sector tactical command for the fire department if activated.

The third recommendation was to encourage the formation and participate in a working group with LAC unified action partners to ensure a common operating picture. This group will define roles and responsibilities of each agency as well as allocation of resources for a mass evacuation emergency. The goal of this action will increase a shared understanding of operations. The draft LAFD FCD operational procedure on mass evacuation should be presented to each agency for review and to initiate discussion about a framework for each agency providing a future operational procedure. The appointed LAFD mass evacuation, sheltering and re-entry program manager shall be the fire department liaison within this group, if formed.

The fourth recommendation is that in an extended operation involving a mass evacuation LAFD shall initiate an Evacuation Sector which will function as a tactical command in the field to coordinate all assigned roles and resources involved. The evacuation sector shall report to the Operations Chief at the EOC and be responsible for field management of activity such as: (a) sector evacuation and re-entry, (b) evacuation routes, (c) shelters locations and updates, (d) public information relating to the evacuation, (e)working with PIO to ensure a communications plan, (f) daily briefings to responders, (g) medical assistance throughout the incident for responders and evacuees, (h) responder self-care, (i) ensuring resource accountability, (j) station infrastructure intact, (k) participate in contingency planning. The sector will manage documentation of activity using corresponding ICS forms and established FEMA national evacuee tracking systems (NMETS and or PBEST), as well as, utilize the LAFD FCD Mass Evacuation, Sheltering and Re-entry for operational considerations.

The fifth recommendation is that the LAFD mass evacuation, sheltering and re-entry program manager along with an LAPD designee, LAC Emergency Manager, and LANL Emergency Manager shall work to consolidate zones, and further "sector" zones to one system within the jurisdiction. The sectors will include detailed information such as: (a) shelter locations, (b) vulnerable populations, (c) critical infrastructure facilities, (d) pre-determined evacuation routes.

The sixth recommendation is the development of mutual aid agreements, or MOUs for response and resources to support mass evacuation, sheltering and re-entry operations for LAC jurisdiction. The LAFD mass evacuation, sheltering and re-entry program manager shall liaison with other departments in the utilizing the LAFD FCD Mass Evacuation, Sheltering and Re-entry procedure within the Evacuation Sector.

The seventh recommendation is all Los Alamos Fire Department personnel shall review and understand the LAFD FCD Mass Evacuation, Sheltering and Re-Entry procedure if adopted.

The eighth recommendation is that the LAFD FCD Mass Evacuation, Sheltering and Re-Entry procedure if adopted, shall be updated or revised as needed annually and reviewed every three years. The designated LAFD mass evacuation, sheltering and re-entry program manager shall be responsible.

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Appendix A

Initial infrastructure evacuation factors considered in a military operation. (JP 3-68, 2015 p. 182).

- Identify logistics infrastructure that might support the evacuation, including non-DOD mission partner capabilities.
- Locate suitable sites for reception centers, evacuation points, ECCs, and embarkation sites.
- Identify and evaluate HN fire and rescue services. (HN = Hostile Nation)
- Identify and evaluate communication and information systems that can support the evacuation.
- Identify and evaluate routes that ensure evacuation.
- Identify and evaluate means of transportation for evacuees.
- Assess the availability of food and drinking water for evacuees.

Appendix B

Levels of plan activation and response incidents defined (medium) category (Prieto, 2018 p. 36):

LB Hammersmith & Fulham - Emergency Management Plan						
	London Local Authority Coordination Centre No					
	,, , ,, , ,, , ,, , ,, , ,, , ,, , ,, , ,, , , , , , , , , , , , , , , , , , , ,					
	Medium (Disruptive)					
Definition	efinition Significant impact on residents and council services, usually across a limited area. Activation and coordination of a range of council services is likely, with some services operating outside of normal operating parameters.					
Example Incidents	 Evacuation of housing block or a wide residential area requiring low to medium level shelter. Low levels of injuries or fatalities. Evacuation of care home or hospital. Internal failure of IT infrastructure or telecoms, or an electricity failure affecting the servers, with some impact on business contributions of the servers. 					
Response		Required?				
Key Roles	Activate Duty Silver	YES				
	Activate I AL O	YES				
	H&F: Activate Welfare Bronze	Potentially				
	Use of Housing Options	Potentially				
	H&F: Activation of Reception Centre Bronze	Potentially				
	BECC Team	Potentially				
Duty Press Officer		YES				
	YES					
		TEO				
Council	Activation of BECC and BECC Team	No				
Management Activation of Tactical Coordinating Group		No				
managomont	No					
		110				
Communications	Text Alert to Council Emergency Responders and partners	Potentially				
	Text Alert to TCG and BECC Team	Potentially				
	Text Alert to Members	Potentially				
	Staff Information Line	Potentially				
	Public Information Campaign	Potentially				
	Day and Night Contact Centre Involvement	Potentially				
Multi-Agency	Multi-agency Gold Meetings	No				
Arrangements	Silver Coordinating Meetings	YES				
	Health and Wellbeing Group	Potentially				
	London Local Authority Coordination Centre	No				

Version 4.1

April 2018

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Appendix C

Example of a Sector Map from Ontario Mass Evacuation Plan (OMEP) Annex, 2013, p. 39.

Appendix 5 – Sample Sector Map

This annex contains a sample sector map shared with the permission of the City of Sarnia for information purposes only. This map shows a sector and the text below outlines the evacuation routes and clearance estimates in the case of a chemical release by nearby refineries.



If an incident occurred in EVACUATION ZONE **E10** and depending on the prevailing winds, those in EVACUATION ZONE **E8** might be instructed to proceed east using both Wellington Road. (1 east bound lane) and Confederation St. (1 east bound lane).

In one (1) hour using two (2) lanes with no officers available to keep traffic flowing 2,000 cars would be processed. Estimating that in each car there was 2.1 persons it would allow the evacuation of 4,200 people from a total of 5,000 for that zone.

If officers were available at intersections with lights to keep the traffic moving and using the same scenario 1900 cars per lane it would allow 3,800 cars or 7,980 persons to evacuate in a one hour time frame.

This example is also assuming that:

- There were no accidents or construction on these roads at the time.
- That during an evacuation that there would still be an average of 2.1 persons per car that the public would not have more persons per car or be requested to have more persons per car.
- That people in this area of the City would not be more reliant on public transportation.

Appendix D

FEMA Example of Shelter Resource Typing Sheet of a Short-Term Shelter (March, 2017).



MARCH 2017

DRAFT – Pre-Decision al – DRAFT SHORT-TERM SHELTER

1 OF 3

Appendix E

Email with questions to identified LAC Unified Action Partners: (sent out September 10, 2018 with due date of September 23rd)

September 10, 2018

Dear LAC Unified Action Partner:

Some of you know me, but for those that don't I will provide a short introduction followed with my request. My name is Wendy Servey and I am Battalion Chief assigned as the Fire Marshal with the Los Alamos Fire Department. I am in the Executive Fire Officer Program at the National Fire Academy in Emmitsburg, MD and I am currently a student in the Executive Analysis of Fire Service Operations in Emergency Management class. I am in the process of completing an applied research project that is conducting research on the development of a (draft) operational procedure for FD actions in a mass evacuation / sheltering incident. I am writing to request your assistance by asking you to answer the following email questions below and return it to me by September 23rd, 2018. (For ease, just reply to this email, answer the questions after your consideration and send.) The answers you provide to the questions will be kept confidential and anonymous and should take 15 minutes or less to complete. If you have any questions, please contact me at **Control of Section**. Note: If the question doesn't apply to you or your agency please mark N/A after it and skip the question.

Thank you for taking the time to complete the questions in the email and if you could provide a contact number as requested with your response just in case I have questions for follow-up. In closing, thank you for taking time out of your day to complete the email questions, the information you provide will be helpful in completing this project.

Wendy Servey Fire Marshal Los Alamos Fire Department

wendy.servey@lacnm.us

Name: Title: Career experience in years: Please provide best way to contact you for follow-up if needed:

- Are you aware of any laws, regulations, or standards that are utilized locally when considering a mass evacuation / sheltering incident?
- Does your agency initiate an operational procedure/guideline/plan for your personnel on how to proceed during a mass evacuation / sheltering event? If so, please comment or if you would like to share a copy feel free.

PLANNING MASS EVACUATION RESPONSE IN LAC

- 3. If a procedure/guideline/plan is followed in the previous question does your plan incorporate or expect LAFD to help with certain areas of responsibility in an mass evacuation? If so, please comment as to what those roles would more than likely be to assist your agency with its goals?
- 4. What resources would be required of LAFD from your agency in a mass evacuation?
- 5. In your opinion, if your agency does not have a written procedure/guideline/plan on how to proceed in a mass evacuation / sheltering event can you briefly name some barriers in doing so?
- 6. Has you or your agency/dept directed or assisted in a mass evacuation event affecting the Los Alamos jurisdiction? If so, can you name some of the event (s)?
- 7. Are there any take-a-ways to what went well or lessons learned that you or your agency have experienced or that you have heard about from others in your agency who experienced an event specifically related to, mass evacuation / sheltering?

END.

Appendix F

Follow-up email with questions to identified LAC Unified Action Partners (sent Sept. 24 with an October 10) deadline:

September 24, 2018

Dear LAC Unified Action Partner for you or a designee within your department:

Good afternoon, this is Wendy Servey, Fire Marshal with the Los Alamos Fire Department (LAFD). I am following up with you in reference to email questions I sent to you back on September 10th for the Executive Fire Officer Program at the National Fire Academy in Emmitsburg, MD in which I am a student. I am in the process of completing my applied research project for this class. The end result of my research will be the development of an internal (draft) operational procedure of how LAFD will proceed in a mass evacuation (roles and responsibilities). It may interest you to know that this (draft) procedure may be utilized as starting point for discussion of what other partner agencies could expect of LAFD to direct or assist with in a mass evacuation emergency, and as you know, such an event will require all of us.

I have not received your (or your designee's) response to the email questions and I wanted to again ask for your assistance. The information you share is essential and invaluable to the completion of my project. If you complete the questions below and return it to me via email by **sector and the sector an**

Thank you and if you have any questions please contact me directly at

Wendy

QUESTIONS THE SAME AS PROVIDED SEPTEMBER 10, 2018.

Appendix G

List of NM Statues, List of Federal Acts & OSHA Regulations relating to Evacuation

New Mexico Statutes

- New Mexico Constitution, Article V., Sections 4, 5, and 7.
- All Hazard Emergency Management Act, [12-10-1 through 12-10-10 NMSA 1978]
- Disaster Location Act, [12-11-19 to 12-11-22 NMSA 1978]
- Disaster Relief Act, [12-11-23 through12-11-25 NMSA 1978]
- Disaster Succession Act, [12-11-1 through 12-11-10 NMSA 1978]
- Emergency Communications Interoperability Act, [12-10D-1 through 12-10D-6, NMSA 1978]
- Emergency Gas Pilot Relighting Act, [12-12B-1 through 12-12B-4]
- Emergency Licensing Act, [12-10-11 through 12-10-13 NMSA 1978]
- Emergency Management Assistance Compact, [12-10-14 and 12-10-15 NMSA 1978]
- Emergency Petroleum Products Supply Act, [12-12-10 to 12-12-16 NMSA 1978]
- Energy Emergency Powers Act, [12-12-1 through 12-12-9 NMSA 1978]
- Hazardous Materials Emergency Response Act, [12-12-17 through 12-12-30 NMSA 1978]
- Homeland Security and Emergency Management Department Act, [9-28-1 through 9-28-6 NMSA 1978]
- Intrastate Mutual Aid Act. [12-10B-1 through 12-10B-10 NMSA 1978]
- Legislative Disaster Succession Act, [12-11-11 to 12-11-18 NMSA 1978]
- Martial Law, [20-2-1 through 20-2-4 NMSA 1978]
- Public Health Emergency Response Act, [12-10A-1 through 12-10A-19 NMSA 1978]
- Riot Control Act, [12-10-16 NMSA 1978]
- Uniform Emergency Volunteer Health Practitioners Act, [12-12A-1 through 12-12A-13 NMSA 1978]
- Volunteer Emergency Responder Job Protection Act, [12-10C-1 through 12-10C-4 NMSA 1978]

Federal Law and Directives

- Americans with Disabilities Act (ADA) Amendments Act of 2008, P.L. 110-325
- Crime Awareness and Campus Security Act of 1990
- Disaster Mitigation Act of 2000 Public Law 106-390.
- Emergency Federal Law Enforcement Assistance Act (EFLEA). 42 USC 10501 (2006).
- Emergency Management Assistance Compact PL 104-321
- Homeland Security Act of 2002, Public Law 107-296, as amended.
- Homeland Security Presidential Directive 5: Management of Domestic Incidents, February 28, 2003
- National Emergencies Act. 50 USC 1601-1651 (2005).
- Pets Evacuation and Transportation Standards (PETS) Act of 2006, Public Law 109-308.
- Post-Katrina Emergency Management Reform Act (PKEMRA). PL 109-295
- Presidential Policy Directive 8 / PPD-8: National Preparedness, March 30, 2011
- Public Health Service Act, 42 U.S.C. 201 et seq.
- Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288), as amended PL 100-707
- Sandy Recovery Improvement Act of 2013 (P.L. 113-2)

Appendix H

Internal Survey results of Los Alamos Fire Department members: (30) Responses out of possible 132 participants with 10% subtracted due to civilian staff (15) = 22% response rate.



PLANNING MASS EVACUATION RESPONSE IN LAC






Mass Evacuation/Sheltering (ME/S) Survey

SurveyMonkey

Q5 In your opinion, select ALL that apply from the list of roles that a firefighter could be tasked with during a ME/S event?



Answered: 30 Skipped: 0

Q5: Percentage Breakdown of:

Mass Evacuation/Sheltering (ME/S) Survey	SurveyMonkey	
assist with evacuation (door-to-door notifications, apparatus PA announcements, etc.)	90.00%	27
security of evacuation area	20.00%	6
selection of shelter site s	20.00%	6
inform public of shelter sites and evacuation routes	83.33%	25
tra ffic control and flow	36.67%	11
medical support of evacuee's during exit and in shelters	93.33%	28
medical support for non-evacuee's and responders	90.00%	27
assist with an imal evacuations	33.33%	10
tracking of evacuees	28.67%	8
coordinating or transport of evacuees (air or ground) who are medically challenged	73.33%	22
search and rescue operations related to threat	96.67%	29
hazmat operations related to threat	96.67%	29
fire operations related to threat	96.67%	29
medical treatment related to threat (bio-hazard, explosion, etc.)	96.67%	29
coordinate with mutual aid (FD, Red Cross, CERT teams)	76.67%	23
feeding evacuees	20.00%	6
environment protection related to threat (sandbags, back burns for fire control, contain hazmat run off etc.)	83.33%	25
triage of residences before event (wildfire, flash flood)	90.00%	27
damage assessments after event	23.33%	7
Total Respondents: 30		

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PLANNING MASS EVACUATION RESPONSE IN LAC

Mass Evacuation/Sheltering (ME/S) Survey	SurveyMonkey	
in form public of shelter site locations and evacuation routes	3.33%	1
traffic control and flow	0.00%	0
medical support of evacuees during exit and in shelters	30.00%	9
medical support for non-evacuees and responders	6.67%	2
assist with animal evacuations	0.00%	0
tracking of e vacuees	3.33%	1
coordinating or transport (air or ground) of evacuees who are medically challenged	13.33%	4
coordinate with mutual aid (other FD's, Red Cross, CERT teams)	10.00%	3
feed ing evacuees	0.00%	0
triage of residences before threat (wildfire, flash flood etc.)	20.00%	6
damage assessments of residences after the event	0.00%	0
TOTAL		30

9/13





PLANNING MASS EVACUATION RESPONSE IN LAC

	vacuation/sneitering (ME/S) Survey	SurveyMonk
Q 10	If there is anything you would like to add concerning you experience with a ME/S event, please comment in the line is a second secon	our operationation
	Answered: 2 Skipped: 28	
#	RE SPONSES	DATE
1	I think that the initial response force is going to be too overwhelmed w/incident mitigation to be worried about evacuations. From a policy standpoint, most of our response protocols cover what we should be handling during an incident of any magnitude. I do think that mass evacuations (like CG or LC Fires) should be left to other entities so that we have our personnel at the ready for direct hazard detail. I remember part of a former evacuation had several LAFD members performing evacuation duties at the nursing homes, taking them out of play for anything that could/would have happened elsewhere. These evacueses were not in immanent dang er and there were other du ties that could have been performed elsewhere. It would be un fair for me to not mention that the incident turned out fine and the resources did not wind up being needed. In retro spect however, it did feel like we were stretched thin.	9/1/2018 8:20 PM
2	I believe any major public/private gathering should be mandated to notify the FD. History has shown us that mass shootings happen anywhere. The Fire Service has done a great job in creating building codes and evacuation plans for fires, but not so much for other non fire related hysteria.	8/31/2018 4:08 PM

Appendix I

External Survey results of Fire Department members nationally sent to EFO Section of IAFC website: (152) Responses out of possible 1400 participants = 11% response rate.

Mass Evacuation / Sheltering Survey (FD's regional & national)

SurveyMonkey

Q6 In your opinion, check all potential roles and responsibilities your firefighters could be tasked with during a ME/S event?

Answered: 152 Skipped: 0

PLANNING MASS EVACUATION RESPONSE IN LAC

Mass Evacuation / Sheltering Survey (FD's regional & national)	SurveyMonkey	
security of evacuation area	10.53%	16
inform public of shelter sites and evacuation routes	69.08%	105
tra ffic control and flow	18.42%	28
medical support of evacuees during exit and in shelters	83.55%	127
medical support for non-evacuees and responders	80.92%	123
assist with an imall evacuations	42.11%	64
tra dking of e vacuees	38.82%	59
coordinating or transporting evacuees (air or ground) that are medically challenged	57.24%	87
search and rescue operations related to threat	96.71%	147
hazmat operations related to threat	92.11%	140
fire operations related to threat (wildland, hazmat etc.)	96.0.5%	148
medical treatment related to initial threat (bio-hazard, explosion, etc.)	91.45%	139
coordinate with mutual aid (other FD's, Red Cross, CERT teams, etc.)	86.18%	131
feeding evacuees	7.89%	12
environment protection related to threat (sandbags, back burns to contain wildfire, control hazmat run-off	53.29%	81
triage of residences before event (wildland)	46.71%	71
damage assessment after event (floods, hurricanes, etc.)	72.37%	110
Total Respondents: 152		

8/13

Q9 ope	Is there anything you would like to add concerning your rational experience with an ME/S event within your juris comment	department's diction, please
	Answered: 59 Skipped: 93	
ŧ	RE SPONSES	DATE
1	We generally a ssign law enforcement to handle evacuations, and American Red Cross to handle sheltering.	9/10/2018 1:55 PM
2	No	9/10/2018 11:34 AM
3	while a policy exists the primary operation will be conducted by EOC. FD direction and oversight would be shift dependent (inconsistent)	9/10/2018 10:45 AM
4	dose local emergency management coordination with state emergency management is the key to success. A full scale evacuation takes approx 6 days to ramp up and facilitate.	9/10/2018 10:35 AM
5	Our EOC would stand up partial activation for large scale events. They would facilitate in the event planning and would have designated evacuation routes and shelters. The 2 evacuations occurred at outdoor concert events do to sever weather. Planning and giving responsibilities ahead of time led to efficient evacuations of around 8000 people in ten minutes.	9/10/2018 10:29 AM
8	My answers are based on experience at another FD of similar size. Never had to actually evacuate the community but because of floods we did come very close enough a couple of times to make very definitive plans to e vacuate the entire city. The plans we developed were more assigning of responsibilities and developing options.	9/10/2018 10:20 AM
7	I will send the document from the MT Law Enforcement Officers as they conduct the door to door and direction of mass evacs or like events. NFPA 1616 but you probably knew that!	9/10/2018 10:14 AM
8	I think you are on the right track with your question. There should be basic guidelines, that are adaptable to all situations, similar to NIMS principles of incident management.	9/9/2018 4:26 PM
9	We would utilize our reverse 911 and the media along with social media to notify as many as possible	9/9/2018 12:49 PM
10	The Hialeah Fire Department is located in an area prone to Hurricane impact, however the City is not located in a low lying evacuation zone. Only mobile homes are evacuated. Due to the density and extreme population of the area, (235,000 residents in 21 square miles) protect in place is our most appropriate strategy.	9/8/2018 8:05 PM
11	Like most things, we will be called upon to assist with an event with little to no advance training.	9/7/2018 3:15 PM
12	We are in the process of updating our Emergency Management plan	9/7/2018 11:00 AM
13	None	9/7/2018 10:25 AM
14	The Problem is not really us and our local EMS, NO other government/NGO agency plans or has a idea of what to do So us having guidelines is kinda useless with every other agency especially local government(s) and law enforcement more worried about who is in charge than they are how to get people in crisis to a place of shelter	9/7/2018 8:51 AM
15	We are home to a nuclear power plant. As a result County EMA has a rather robust evacuation/mass care plan. We table top at least twice a year as part of our drills.	9/7/2018 7:54 AM
16	Please sent copy of paper to Twatson@cityofpigeonforgetn.gov Good work	9/7/2018 7:41 AM
17	n/a	9/7/2018 5:35 AM
18	My name is Tony Gossner and I am the Chie fof Santa Rosa Fire Department in California. We had the Tubbs and Nuns Fire last year in Sonoma County and evacuated a very large number of people during these fires. I have a number of documents I can share with you if you are interested. If you are, I can be reached at ago esner@srctiv.org	9/8/2018 5:30 PM

IVIASS EV	vacuation / Shehering Survey (PD's regional & national)	Surveyiviotikey
19	We coordinated division task force of FD PD and public works personnel to ensure each and every street within the Citywas notified of the evacuation and shelter processes during Hurricane Irma. We use the county evac/shelter procedure as part of our city/s CEMP	9/6/2018 4:48 PM
20	Call mutual aid when you anticipate a multi casualty event it's better to call them early during an emergency to avoid possibly being overwhelmed by the event.	9/6/2018 3:04 PM
21	We are currently creating a ad hoc for just this purpose AND after event LT sheltering. PIs hare the results of this surve ywith me. Thx Jeff Moral FM Assist Chief EM Director Je ff.Moral@Tamarac.org Tamarac Fire Rescue 954-597-3809	9/6/2018 11:49 AM
22	In California, we routinely perform mass evacs due to wildland fire, flooding, tsunamis, etc. Evacs are performed by local law enforcement. may of our IMT's have a law enforcement liaisons attached, so we have direct contact with LEO's during evacs. This also helps with re-population of the affected areas.	9/6/2018 11:29 AM
23	Verygood relationship with police. During initial attack or flooding a police officer is tied in with IC.	9/6/2018 11:24 AM
24	Nothing to offer. Thank you.	9/6/2018 11:14 AM
25	We are in a hurricane prone area of the outerbanks NC. Evacuations are usually voluntary first, then mandatory for non-residents. Residents are never forced out, and we have no rated shelter locations in the area. We have had to house flood victims, including staff during and after a storm. We also do wellness checks on bilks after a storm, typically while doing assessments. We now have a local CERT team to help with post Storm assessments and cleanup efforts. We have worked with Red Cross, Salvation Army, Baptist Men, Metodist Men and many other groups. We typically act as an extension of the county emergency management though we are technically are a nonprofit FD.	9/8/2018 11:01 AM
26	na	9/6/2018 10:58 AM
27	Loudoun County is lucky to have dedicated OEM office, supported by the Northern Virginia Emergency Response System, located within the Washington Me topolitan Area Council of Governments, and can access any Common wealth of Virginia emergency resources and numerous Federal Agencies.	9/6/2018 10:57 AM
28	We have a large military base here and we cooperate with them as they have a huge Deployment / reception Center on an Army airfield. The main use is receiving evacuees from Hurricane affected areas in other parts of the state. During a very rare hard freeze in Feb. 2011, the city opened the convention center for residents who lost power or other utilities and FD maintained a Triage area for any medical issues that came up. The ranking officer kept in touch with the EOC as far as census, # of pfs, etc.	9/6/2018 10:48 AM
29	I think the notion of mass evacuation has probably not been realistically considered by many towns that don't live near a visible threat (e.g. hurricanes, volcanoes, etc). In my experience, even organizations who live near visible threats and plan for these events don't have visible plans until they have been thru a real event and experience the chaos. This was the case for the flurry of hurricanes in 2004.6 in Florida and the gulf I think a campaign to help towns identify invisible threats (e.g. hazmat on trains, biological agent release, etc) coupled with lessons learned on evacuation chaos will be necessary to get many towns to feel evac is a potential reality for them. Maybe the most important thing is for towns to understand the list of critical tasks which must be completed and the list of general resources a valiable to complete those tasks, so they can be appropriately fiexible if when they have to execute.	9/8/2018 10:40 AM
30	No	9/6/2018 10:38 AM
31	Good luck!	9/6/2018 10:25 AM
32	Our Fire Department is also responsible for emergency management. We work closely with all other town departments and have formed an emergency response team for major events.	9/6/2018 10:10 AM
33	Our organization continues to training with partners to understand roles and potential barriers.	9/6/2018 10:09 AM
34	na	9/6/2018 10:08 AM
35	We are in the 10mile zone for a nuclear power plant so we practice the evacuation plan every two years as required by FEMA. Because of this plan already being in place it is used by all the communities effected for an all hazards evacuation plan. It allows for us to contact areas of the city by phone, we track people with medical issues and have the areas mapped for those that need assistance to not out of effected areas.	9/6/2018 7:47 AM

vial fire district that serves 4 barrier island offers that all handle much of the EM ve the lead on special needs evacuees. ya regional event through mutual aid agreement. be a written plan within everyjurisdiction for ME/S. If your department is going to be operations, you should ensure that you have a role developing and writing the umbers who may be in volved should train on the plan(s) annually. Is above, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. Is above, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. Is above, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. Is above, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. Is a bow, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. Is a bow of the second and designates evacuation routes; also evacuation notices e. Fire/EMS does not have the resources to handle anything beyond initial response during first operational period. Is anything. We work very well with our PD, and thus, would get information and Unified Command. Please send me a link to your ARP when it is complete and good elsheimer@opkansas.org eplanning at the company officer level for a Wildland fire threat in the stations area twas a collaborative effort with a local Firewise planning group. raging the use of FEMA ESF 1 for mass evacuations? our support on this topic. We follow their lead. severe mostly in the same geographical area and were a result of sudden heavy	9/6/2018 5:41 AM 9/6/2018 3:30 AM 9/5/2018 3:30 AM 9/5/2018 3:04 PM 9/5/2018 2:46 PM 9/5/2018 2:15 PM 9/5/2018 1:35 PM 9/5/2018 1:35 PM 9/5/2018 12:30 PM 9/5/2018 12:03 PM 9/5/2018 11:19 AM 9/5/2018 11:19 AM 9/5/2018 10:50 AM 9/5/2018 10:37 AM
ya regional event through mutual aid agreement. be a written plan within every jurisdiction for ME/S. If your department is going to be operations, you should ensure that you have a role developing and writing the imbers who may be in volved should train on the plan(s) annually. above, NFPA has issued guidance on evacuating people with access and ds. Otherwise, 101 only deals with evacuating a building or such. tions and Sheltering are coordinated by the city OEM and Health Department. Law andles traffic control and designates evacuation routes; also evacuation notices e. Fire/EMS does not have the resources to handle anything beyond initial response during first operational period. We anything. We work very well with our PD, and thus, would get information and Unified Command. Please send me a link to your ARP when it is complete and good elsheimer@opkansas.org eplanning at the company officer level for a Wildland fire threat in the stations area twas a collaborative effort with a local Firewise planning group. raging the use of FEMA ESF 1 for mass evacuations? our support on this topic. We follow their lead. s were mostly in the same geographical area and were a result of sudden heavy	9/6/2018 3:30 AM 9/5/2018 3:04 PM 9/5/2018 2:48 PM 9/5/2018 2:15 PM 9/5/2018 1:35 PM 9/5/2018 1:35 PM 9/5/2018 12:30 PM 9/5/2018 12:03 PM 9/5/2018 11:55 AM 9/5/2018 11:55 AM 9/5/2018 11:04 AM 9/5/2018 10:50 AM 9/5/2018 10:49 AM
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Appendix J

Copy of International Association of Fire Chiefs (IAFC) forum post request for any Standard Operating Procedures (SOPs) for Mass Evacuation, Sheltering and Re-entry incidents:

Appendix K

Document analysis for data pertaining to mass evacuation procedures for response from

external (outside of LAC jurisdiction) documents.

Name of Document / Intent	Specific mass evacuation procedures	No specific mass	Offers general evacuation
	transferrable to FD use	evacuation	guidance to citizens
		procedures for FD use	
State of New Mexico,	Local jurisdictions provide immediate emergency	X – State of NM EOC	х
Emergency Operations Plan	evacuation, medical care / sheltering	organization and	
(NMEOP) (2016)	ICS system	command	
Public record: in affect	ESF Functions to support a mass evacuation,		
Purpose: to establish the state's	mass care and sheltering. ESF#4 Firefighting,		
emergency operations system	ESF #6 Mass Care, ESF#9 Search and Rescue,		
Audience: For EM, planners,	ESF#5 Public Information, ESF#2		
government officials, counties	Communications and ESF#1 Transportation		
without a plan in the State and			
citizens			
Santa Fe County, SFC -	Fire protection in vacated area		х
Evacuation annex (draft),	Assist in warning the public		
(n.d.)	Assist in evacuating individuals with access and		
Public record	functional needs upon request; medical personnel		
Purpose: to provide guidance in	will assist or coordinate in hospital evacuations		
evacuation in SFC. NM	call back of personnel-standby		
Audience: internal only not			
implemented.			
Ontario Mass Evacuation Plan	Organization concepts of evacuation process with		х
(OMEP) (2013)	extensive questions for planning		
Public record	Cars per hour estimates for evacuation routes		
Purpose: aid a municipality in	Extensive sector planning and example		
preparing an evacuation plan	FD can assist with notifications, search and		
Audience: government officials,	rescue, and transport		
planners, responders and	Emphasis on Communications plan		
citizens			
London Borough of	Life-saving through search and rescue		х
Hammersmith & Fulham –	Firefighting and fire prevention		
Emergency Management Plan	Render humanitarian services		
(2018)	Detection and identification, management of		
Public record	hazardous materials		
Purpose: to provide service	Salvage and damage control		
delivery to keep business open	Safety within evacuated – hazard areas		
Audience: local authorities,	Maintain emergency service coverage		
planners, responders and	Treat injured and stabilize medically		
citizens	Triage and transport and provide a mobile		
	emergency response - interface with hospitals		
National Response Framework	Emphasis on incidents start and managed locally	How to request	
(NRF) (3rd ed.) (2016)	Use of NIMs and ICS	assistance	
Public record		How federal	
Purpose:		government interfaces	
Audience: government officials,		with state and local	
EMs, planners, responders and		government	
citizens		How EOCs are	
		activated and other	
		agencies in a disaster	

Document analysis of extern	al documents (outside LAC	jurisdiction).
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PLANNING MASS EVACUATION RESPONSE IN LAC

Department of Homeland Security – FEMA Target Capabilities List (2007) Public record Purpose: Audience: government officials, EMs, planners, responders and citizens	Response mission: citizen shelter-in-place and evacuation section offers extensive critical task and performance objectives for evacuation, sheltering and re-entry Search and rescue timelines / Fire Control timelines Hazmat timelines Outlines how information is disseminated	X - offers objectives that could provide public information in addition to detailed objectives
Planning Considerations in Shelter-in-Place and Evacuations – FEMA (2018) Public record (draft only) Purpose: draft document for critical considerations Audience: government officials, EMs, planners, responders and citizens	Document outlines critical considerations such as homeless, or tourist evacuees Tracking of evacuees Use of Zone methodology in planning Fuel management Matrix of factors to consider in the evacuation, sheltering and re-entry phase	
Phoenix Regional SOP – M.P. 201-05E – Evacuation Sector (2014) Public record Purpose: to provide guidelines to conduct an evacuation of citizens Audience: Fire department personnel	Provides initial plan considerations Area of evacuation considerations Defines level of evacuations per local considerations Duration of evacuation Who should be evacuation Shelter site considerations Command structure and responsibilities Communications Police responsibilities On-site notifications Evacuation sector and Transportation sectors	
JP 3-68 Joint Operations – Military Non-combatant Evacuations (2015) Public record – not restricted Purpose: to provide guidelines to conduct an evacuation for military personnel of joint operations Audience: Military personnel and citizens	Initial evacuation considerations Setting up communications and plan for – radio frequencies Tracking of non-combatants Transportation of evacuees by ground, sea, air Pre-staging of evacuees and other resources Shelter – medical considerations Security of area	X – provides information for non-combatant evacuees and families of military involved
NFPA 1616 Mass Evacuation, Sheltering and Re-Entry Industry standard – must have access Purpose: to provide guidelines to conduct an evacuation, sheltering and re-entry of citizens Audience: Fire department personnel and other related EMs, planners	Extensive recommendations offered for each phase of a mass evacuation event. List of resources needed Guidance given on notifications and information for citizens How to – what is needed for shelter operations and management Shelter resiliency Documentation of a mass evacuation, sheltering event Re-entry considerations	

Appendix K

Document analysis for data pertaining to mass evacuation procedures for response from

internal (in LAC) documents.

Document analysis of internal documents (in LAC jurisdiction).

Los Alamos County, Emergency Operations Plan (LAC-EOP) (2017) Outlines roles and responsibilities assigned to county departments for response to disasters. It does state that more detailed planning is required by each department. X X Audience: For EM, planners, government dificials, counties without a plan in the State and citizens Medical assistance in shelters and or people in transit in an evacuation X X - refers to LAC-EOP, Annex F, Appendix 8 for LAC exoquation plan. Los Alamos County - Local Hazard Mitigation Purpose: to provide guidance in evacuation in SFC, NM Audience: internal only not implemented. X X - refers to LAC-EOP, Annex F, Appendix 8 for LAC evacuation plan. LAFD FCD 526 Medical Evacuation (2015) Purpose: provide guidance in mergency Audience: internal only not implemented. N - medical focus Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office Documentation of ICS 204, ICS 206, ICS 214 and MD Transportation officer / staging office	Name of Document / Intent	Specific mass evacuation procedures	No specific mass	Offers general evacuation guidance
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(2018)	(2018)			
Public record: internal FD use	Public record: internal FD use			
Purpose: response guidelines for emergency	Purpose: response guidelines for emergency			
incidents involving hazardous materials	incidents involving hazardous materials			
Audience: LAFD personnel	Audience: LAFD personnel			
LAFD FCD 804 Rehabilitation (2015) Rehabilitation for incidents over one hour X	LAFD FCD 804 Rehabilitation (2015)	Rehabilitation for incidents over one hour	х	
Public record: internal FD use	Public record: internal FD use			
Purpose: guidelines for rehabilitation for	Purpose: guidelines for rehabilitation for			
emergency incidents	emergency incidents			
Audience: LAFU personnel	Audience: LAFD personnel			
LAFD FCD 802 Safety Clothing and Equipment Wearing of appropriate personal protective equipment X	LAFD FCD 802 Safety Clothing and Equipment	Wearing of appropriate personal protective equipment	х	
(2017) (PPE) for assignment	(2017)	(PPE) for assignment		
	Public record: Internal FD use			
Purpose: guidelines for PPE USE	Purpose: guidelines for PPE use			
Audience: LAFD personnel	Audience: LAFD personnel			
LANL Emergency Procedures and Protective Site-wide evacuation procedures X – released to visitors by LAN.	LANL Emergency Procedures and Protective	Site-wide evacuation procedures		X – released to visitors by LAN.
Actions No. P1201-4 Sheltering in place (SIP) actions	Actions No. P1201-4	Sneitering in place (SIP) actions		
Public record: Internal LANL Use Evacuation route maps	Public record: Internal LANL use	Evacuation route maps		
Purpose: guidance for LAINL and Visitors in Site wide employee and management notifications	Purpose: guidance for LANL and Visitors in	Site wide employee and management notifications		
Protective actions, nonincations Security of area after evacuations	Audiance: LANL employees and visitors	Security of area after evacuations		

Appendix L

Mass Evacuation, Sheltering and Re-Entry

Effective Date: DRAFT ONLY Revised Date:

Fire Chief's Signature

Date

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Purpose

The purpose of this directive is to establish Los Alamos County Fire Department (LAFD) response guidelines for emergency incidents involving mass evacuation, sheltering, and re-entry.

Policy

A large-scale disaster is likely to strain local resources within Los Alamos County. This incident may involve a shelter-in-place or evacuation element as a protective measure for life safety. The Los Alamos County Fire Department (LAFD) will be responsible to direct immediate protective measures (shelter-in-place or evacuate) if the primary incident is fire-based or assist in appropriate measures if the primary incident is police-based. This directive assumes other county agencies, or mutual aid companies may be assigned in lieu of LAFD personnel if LAFD forces are committed to initial threat stabilization.

Evacuation Terminology

Shelter-in-place: To use a safe area inside a building or structure.

Evacuation warning: Alerting and warning of community members in defined area of potential threat to life and property due to an emergency.

Evacuation order: Movement of community members out of a defined area due to an immediate threat to life and property from an emergency activation.

Mandatory evacuation: This is a warning to persons within the designated area that an imminent threat to life and property exists and individuals must evacuate in accordance with the instructions from local officials.

Voluntary evacuation: This is a warning to persons within a designated area that a threat to life and property exists or is likely to exist in the immediate future. Individuals issued this type of warning or order are not required to evacuate; however, it would be to their advantage to do so.

EVACAUTION LEVELS:

Site evacuation level – small number of citizens, workers on-site or adjacent areas, holding time 1-2 hours, shelter-in-place on-site or evacuates to a perimeter area – low resources needed (1-3 crews)

Intermediate evacuation level – upsets a larger number of citizens in bigger area that affects off-site homes & business, fewer than 100 people, holding time of four-six hours or more. Gathering and monitoring (tracking) evacuees more effort. Some evacuees may leave the area or be sent home. Perimeter security may require more resources and coordination with LAFD or LANL security force. (3-5 crews)

Mass evacuation level – upsets thousands of citizens that could be evacuated. A no-notice evacuation may happen. Evacuees could be out of their homes or business for over six hours to days. Evacuation timeframes are extended and phased with use of evacuation warnings, voluntary evacuation then progressing to mandatory evacuation. Evacuation shelters will be opened and managed, to include evacuee tracking. More than likely will have a medical branch performing medical evacuations. More resources will be needed to manage and support the evacuation to include EOC activation, site operations, and state resources. LAFD resources may not be available to assist due to initial threat mitigation assignments.

INCIDENT COMMAND (IC):

In the event of a large-scale disaster or incident the Planning Section of the LAC-LANL Emergency Operations Center is responsible for overall evacuation plan. The Operations Section will manage the actual evacuation process through an Evacuation Branch. In lieu of LAC-LANL Emergency Operations Center not fully activated Incident Command will consider establishing an Area Command, Tactical Operations Center and set-up an immediate Evacuation Branch as necessary. If the Evacuation Branch involves Medical Evacuation procedures will be followed per LAFD FCD 526 Medical Evacuation and Medical Branch operations will fall within the overall Evacuation Branch. Incident command structure will follow established Incident Command System (ICS), National Incident Management System (NIMS) and LAFD FDC Blue Card Command following a modular organization to accommodate an expanding while adhering to the Risk Management Plan. IC in a large-scale event will rapidly expand to Unified Command.

Procedures

Initial Incident Command (IC) Considerations involving Evacuation/Shelter-in-Place:

- First priority is to follow LAFD response FCD's to mitigate and stabilize the immediate threat (a) fire control, (b) hazmat mitigation and decontamination, (c) and rescue with the goal to protect life safety, obtain incident stabilization, and safeguard property conservation.
- Fire control objective example: Begin firefighting and suppression operations to protect (#) acres of land and or (#) critical infrastructures within (#) minutes of notification and sustain operations for (#) hours.
- Hazmat mitigation objective example: Hazardous materials team's complete decontamination operations for (#) responders and (#) residents in the (#) square mile or sector incident area within (#) hours of an incident.
- Search and Rescue objective example: Conduct search and rescue operations across a (#) square mile area or sectors to locate all (#) missing residents within (#) hours of an incident.
- Determine need to shelter-in-place or evacuate. It is preferable to shelter-in-place first, or if not evacuate the smallest amount of people necessary for the shortest distance possible.
- Start a unit/activity log ICS (214)
- Request a LAPD and or LANL security force or park ranger as a liaison to the Incident Command Post (ICP)
- Notify all chiefs via page per policy
- Notify emergency manager (EM) and or LANL-EM liaison, county public information officer (PIO).
- Notify full or partial EOC activation
- Initiate an emergency call back of personnel for staffing
- Switch staffing 12-hour operational period with 50% of the force working for 12 hours then rest
- Establish an Evacuation Branch
- Designate an Officer assigned as the Evacuation Branch Officer (EBO) to function as a field tactical command with radio designation of "Evacuation or Evac Command"
- Identify affected geographic area or area perimeter per zone or sector(s) maps
- Identify the amount of people affected
- Identify evacuation time frame
- Identify and establish immediate emergency shelter sites
- Identify any additional resources staffing, public works, traffic, transit
- Duration of evacuation estimate

- Assist in notifications and information to evacuees through messages vetted through EMs, PIO or use emergency messaging script *(Addendum A)* and start a communications plan (ICS 205)
- Tracking of evacuees (Use of NMETS or PBEST systems)
- Re-entry of evacuees
- Demobilization, and debrief of personnel

EVACUATION BRANCH

The IC will establish the Evacuation Branch based on need. An Evacuation Branch Officer (EBO) will be "Evacuation or Evac Command" assigned under IC/UC or Operations Section if EOC driven. The Evacuation Branch Officer (EBO) will direct and request resources for the evacuation process for LAFD and maintain communications with IC/EOC as necessary. A separate radio frequency will be assigned to Evacuation Branch. Other branches and sectors associated with Evacuation branch operations will be implemented as needed (i.e. medical branch, transportation sectors, staging sector and work within the Evacuation Branch on the radio channel assigned. Additional radio channels will be requested by the Evacuation Branch Officer (EBO) will communicate directly to the IC/UC or EOC operations. It is possible that if short-staffed a police officer, Emergency Management or other county employee with ICS training can be designated as the EBO, but if fire based it is should be a ranking LAFD officer.

Evacuation Branch Officer (EBO) Considerations:

- Receive initial report from IC
- Start a unit/activity log (ICS 214)
- Determine affected shelter-in-place or evacuation zones / sectors or perimeters areas
- Develop an evacuation incident action plan (IAP)
- Determine or estimate the number of evacuees
- Evacuation objective example: complete the evacuation of (#) residents, including (#) residents with access/functional needs, and (#) household pets, and service animals across a (#) square mile or sectors within (#) hours of mandatory evacuation order.
- In emergency evacuation, quickly assign local shelter sites (school, church, auditorium, lecture hall) and determine the number and location of shelter sites and communicate to field and other agencies.
- Determine the duration of the evacuation the evacuation will be sustained if the risk continues in the evacuated or shelter-in-place area.
- Request additional staff to support evacuation, sheltering and re-entry operations.
- Request a police supervisor liaison LAPD
- Request an emergency management (LAC-LANL EM) and or public information (PIO) liaison
- Develop and disseminate a communication plan (ICS Form 205) with assistance of LAPD, LAC-LANL EM, and PIO if available for the evacuation branch to ensure continuity of messaging to evacuees and responders.
- Develop and perform a daily briefing schedule for Evacuation Branch
- Develop sectors for additional functions to maintain span of control such as:
 - a) public liaison sector

- b) staging sector
- c) transportation sector
- d) shelter sector
- e) geographic sectors
- Unless indicated Evacuation Branch Officer (EBO) will manage sectors with the
 exception of the Medical Branch Officer which will manage a medical staging, medical
 transportation and medical sector all under their purview, however, still report to the
 Evacuation Branch Officer as a co-lead to ensure continuity of overall evacuation
 operation.
- Provide and maintain information to all sectors so information can be shared to responders and evacuees to include:
 - a) shelter locations
 - b) written instructions out of an area for private vehicles

PUBLIC NOTIFICATIONS AND INFORMATION CONSIDERATIONS

Notifications to evacuate or shelter-in-place may be made through the news media, the Emergency Alert System, vehicles with loudspeakers, or by door-to-door contact. Order or recommend the shelter-in-place and or evacuation to include pre- evacuation warnings if time allows are determined evacuation timeframes. Recommended timeframes are:

- Shelter-in-place within 15 minutes of order;
- In a phased mass evacuation with time the frequency with which public is initially notified of evacuation procedures, routes, locations or sources of evacuation information every 30 minutes during the mobilization phase of the operation;
- The time in which traffic and transportation plan is implemented to enable evacuation within incident timeframe within 3 hours of evacuation order;
- The time in which evacuation of the affected general population for an event with advanced warning is completed within 72 hours from the order to evacuate.

To notify and provide information to the public and responders: use appropriate public information message.

If EOC or PIO is available utilize EOC-PIO to ensure continuity of messaging.

If EOC has not been fully activated, consider use of pre-scripted evacuation or shelter-in-place messages. (See examples in *Addendum A*)

Request 911 Dispatch activate emergency public alerting phone system to warn the public in the danger area, if appropriate use CodeRED notification systems in place.

Contact local news media and request they warn the public in the danger area.

Consider activating the Emergency Alert System (EAS). To activate the EAS request 911 Dispatch contact the NM State Communications Center. Select appropriate pre- scripted message or write your own message.

On-site notifications: Use police/fire vehicles in a coordinated effort with siren/loudspeakers or door-to-door contact in a grid system of a zone/sector. Maps and briefings will be provided by Evacuation Branch Officer to all agencies and mutual aid involved.

Door-to-door notifications take time and can drain resources. On-going and continuity of messaging is critical for correct evacuee action. Updated information should be obtained from Evacuation Branch Officer.

Door-to-door notifications:

- Teams of two consider multi-lingual needs
- Be in uniform
- Wear helmet

Face-to-face notifications should include the following information:

- There is an emergency
- You are in danger
- Leave immediately
- Go to shelter (location)
- Take (evacuation route) out of this area
- Do you need transportation?

Evacuees should be advised to take the following items:

- Wallet/Purse
- House and Car Keys
- Money
- Eyeglasses
- Medications
- Proper Clothing for Conditions
- Family Pet

Siren / PA Driving notifications for Immediate or Rapid Evacuation Considerations

- Use three (3) five-second blasts of siren while on the "YELP" setting at the beginning of street
- The announce the Face-to-face notification of above while parked wait a few minutes then move on.
- Initiate the notification at the beginning of each block and 50 yards (150 feet) after that
- Use maximum volume on PA
- Proceed slowly down assigned street to maximize driving notification.

NOTE: Once each assigned sector is complete report to the Evacuation Branch Officer (EBO).

TRACKING OF EVACUEES AND REFUSALS TO EVACUATE DOCUMENTATION CONSIDERATIONS

Tracking of evacuees and non-evacuees will start in the field during mass-transit bus use and or door-to-door refusals. Documentation of these actions by members of the public is necessary and is a responsibility of the jurisdiction once an evacuation is ordered.

<u>Non-evacuees - refusal to leave</u> – LAFD cannot force non-evacuees to leave. People do not often leave for fear of looting, or pet care concerns. Written documentation of non-evacuee's address should be performed or broadcast of address to Evacuation Branch if radio traffic allows. Also, ask for a family numbers name to notify in case of injury or death. Documentation will be collected by the Evacuation Branch at the end of shift.

National Mass Evacuation Tracking System (NMETS) and Paper-based Evacuation Support Tool (PBEST)

The National Mass Evacuation Tracking system (NMETS) and Paper-based Evacuation Support Tool (PBEST) are systems now in place to track evacuees. PBEST is used as a low-cost solution, easy paper system when technology can fail. NMETS is both a manual and computer-based system to use wristbands and barcodes to track evacuees. The Evacuation Branch Officer will initiate and coordinate with LAC-LANL EM, if available as to which system is in use for the incident.

EVACAUTION ROUTE CONSIDERATIONS:

LAPD/LANL security force will ensure that traffic and access control points are staffed prior to evacuation, if possible. Traffic Control Points must be established at major intersections along main evacuation routes to ensure an orderly traffic flow in the event of an evacuation. Access Control Points are needed to divert traffic from entering a risk zone. LAPD/LANL security force is responsible for establishing Traffic and Access Control Points.

Temporary respite point may be positioned further along an evacuation route for further information and water and bathroom facilities in case immediate evacuation.

County Traffic and Streets, Public Works will deploy road clearance and traffic control resources assigned to support evacuation operations. LANL messaging signs will be utilized.

The Evacuation Branch will work with LAPD/LANL security force and EOC when activated to determine with evacuation routes and assist with fire personnel if staffing allows. LAPD/LANL security force will provide security of areas once evacuated and or establish barriers. In addition, security will be provided around evacuated area/s to assist LAFD with perimeter control while LAFD is in emergency operations. If it is safe to do so provide for security patrols in evacuated area/s.

Emergency Management of LAC-LANL through the EOC will coordinate with the LAFD Evacuation Branch Officer for evacuation, shelter and transportation requirements from the field and develop contingency plans in case an evacuation route or shelter needs to be moved etc.

TRANSPORTATION SECTOR CONSIDERATIONS

A Transportation sector should be established within the Evacuation Branch with an officer assigned. The transportation sector may employ a staging sector and will utilize the same radio frequency as the Evacuation Branch.

Start a Unit Log (ICS 214) for documentation of activity. The Transportation sector is responsible for:

Requesting needed support personnel from the Evacuation Branch.

Coordinate with Evacuation Branch, other agencies (mass-transit), pick-up points or addresses of those needing transport (non-medical). Close communication is needed with to mass-transit dispatch center to coordinate buses. Start with two buses. If possible, a uniformed one fire or police person is on each bus equipped with a fire or police radio to coordinate pick-up points or addresses of residents in need of transport.

Medical Branch coordinate with medical sector or obtain appropriate resources ALS, BLS to assist with evacuation of vulnerable or medically assisted. A Medical Branch Officer (MBO) should be established working with the Evacuation Branch Officer (EBO) following LAFD FCD 528 Medical Evacuation for medical facilities within the county. The EMS Chief has oversight of medical evacuations.

Designate a staging location and remain there as designed or default is Los Alamos County Fire Station 3, 129 NM-SR 4, White Rock, NM 87544, (505) 663-1843.

SHELTER SECTOR CONSIDERATIONS

Initial Shelter site selection must be made by the IC/or Evacuation Branch Officer (EBO). LAC EM/EOC will be working on long term shelter options which will include the Red Cross. It is estimated to take three hours for Red Cross to mobilize. As a result, LAC is responsible to provide for evacuees until transition to Red Cross representatives is complete. LAFD may have roles involved in sheltering if staffing allows, or it will be staffed by mutual aid or other volunteers.

The Evacuation Branch Officer (EBO) will assign a Shelter Manager Officer to initiate shelter operations and proper documentation (See Addendum B). Each shelter location will have a Shelter manager. A shelter sector will be operating under the Evacuation Branch and if more than one shelter is operating, they will be designated on the radio by address location. The shelter sector will work off of the Evacuation Branch radio tactical channel.

It is recommended that initial shelter operations have medical support which requires a certification as first responder, or BLS or ALS level as staffing allows and to be FEMA ICS 100, 200 certified. LAFD should assign a crew of two as a minimum with a ranking officer preferred.

Documentation will be turned over to Red Cross representatives once arrived and copies will be

kept for LAC incident documentation to include any Unit Log (214).

Shelter locations information whether local or regional should be shared and known to the field though the communications plan to aid LAFD personnel in providing the public with accurate information.

Sheltering objective example: Provide emergency sheltering for (#) residents including (#) residents with access/functional needs and (#) household pets and service animals within (#) hours on an incident. Maintain sheltering operations for (#) days.

RE-ENTRY CONSIDERATIONS

Working with teams at the EOC the LAC-LANL EM will develop a re-entry plan shelter-inplace or evacuated areas. The PIO will begin to disseminate a re-entry schedule to the public and it is recommended that this be a phased return or not all at once announcement. Business owners and or other critical facilities LANL, Hospitals and staff should be allowed to return first. This allows services to be available to the community once evacuees return.

LAFD personnel should be aware of the re-entry schedule and or points of re-entry if established by LAPD/LANL security force.

Prior to re-entry, LAFD personnel may be involved in damage assessments and surveys of the area affected with other county agencies to ensure a safe environment for the returning public and adequate infrastructure is intact.

RESPONDER HEALTH AND SAFETY CONSIDERATIONS

To operate safety in a mass evacuation incident, LAFD personnel should don assigned PPE as per LAFD FCD 802 Safety Clothing and Equipment and follow LAFD FCD 804 Rehabilitation guidelines as well adhering to work-rest ratios and 12 hour shifts for extended operations.

The IC will determine when responders will not operate and to seek shelter in fire stations or as designated areas for a prescribed amount of time as "zero hour" or as a designated no-go situation until conditions improve.

Report personal injuries and accidents and equipment failures according to FCD.

Station walk-arounds initially and daily afterwards to ensure station resiliency – generators may be in use. Fuel trucks scheduling for fire apparatus/generators will be arranged by Station 6 personnel.

Communications with responders working in the field is paramount and any information that is passed to the public should be briefed to the crews beforehand if possible. A robust communications plan (ICS 205) should be in place and shared and on-going throughout the

incident. Daily safety briefings at 0800 and 2000 at 12-hour shift changes for all field crews (LAFD, mutual aid and other agencies in the field LAPD, transit) should be implemented with extended operations. The daily briefings will be given by the Evacuation Branch Manager.

Additional housing to increased LAFD/mutual aid staff will be arranged in the area to include the use of hotels, high school gyms, if the infrastructure can support.

Structure gear will be evaluated for decontamination or replacement.

All personnel should be demobilized from the main incident, return to the regular shift schedule and be in a normal state of readiness prior to the public return.

A debrief of the incident is recommended of all operating personnel to include mutual aid in a timely manner after conclusion of the incident.

MUTUAL AID CONSIDERATIONS

IC/UC through the EOC and agreements will request mutual aid resources to increase staffing and to assist the jurisdiction in a mass evacuation, sheltering and re-entry event. Check in with Transportation sector officer once staged at designated location or the default location of Los Alamos County Fire Station 3, 129 NM-SR 4, White Rock, NM 87544, (505) 663-1843. Mutual aid resources will be part of the Evacuation Branch.

Through the Transportation sector officer, mutual aid may be assigned to assist in mass evacuation, medical evacuation and or fire structure protection of county-based building only more than likely because of Los Alamos National Laboratory (LANL) facility security concerns. If you are assigned to LANL property a security escort will be arranged or waived as determined by the IC/Operations Section.

Mutual aid will; (a) be provided maps of the area to shown zones and sector information, (b) have information about radio channels to use (c) participate in daily safety briefing by the EBO (d) be assigned to a 12-hour operational shift, (e) may be integrated with an LAFD crew to facilitate communications, (f) be provided housing and food for extended operations, (g) expected to document all activity on a unit activity log (ICS 214), (h) be provided a copy of this directive for reference.

The Los Alamos County Regional Dispatch is 505-662-8222 for additional information.
Addendum A:

SHELTER-IN-PLACE WARNING Pre-Script: (MODIFY AS NEEDED FOR INCIDENT CONDITIONS)

- 1. The _____(*name*) has issued the following warning for those who live, work, or are visiting the County.
- 2. There has been an ______ (*threat, incident, general description*) that is affecting a portion of the local area. People in the following area must take protective measures:

(DESCRIBE AREA BOUNDARIES)

3. If you are located in this area, do the following immediately in order to protect yourself:

Go inside your home, workplace, or nearest building that appears to be reasonably airtight and stay there.

Take your pets with you.

Close all doors, windows, and any fire place dampers.

Turn off any heating or cooling system that draws air from the outside.

Keep your radio on and turned to receive emergency announcement and instructions.

Gather items that you may need to take with you if you are advised to evacuate.

- 4. People traveling in vehicles should seek shelter in the nearest airtight structure. If a suitable structure is not immediately available, travelers should roll up car windows, close air vents, and turn off the heater or air conditioner until they reach a suitable building.
- 5. If shelter is not immediately available, keep a handkerchief, towel, or damp cloth snugly over your nose and mouth until you get indoors.
- 6. IF SCHOOL IS IN SESSION:

Students at the following school(s) are taking shelter at their schools

Parents should not attempt to pick up their students at school until the hazardous situation is resolved and they are advised it is safe to do so.

Students at the following school(s) have been / are being evacuated to other facilities

Parents should not attempt to pick up students from schools that have been evacuated. Local officials will provide information on where to pick up school children as soon as it is available.

- 7. If you know of any neighbors or co-workers with hearing or language differences or special needs, please advise them of this message.
- 8. Please do not call [911] or local emergency officials for information. Stay tuned to this station for additional information.

EVACUATION WARNING – SPECIAL NEWS ADVISORY Pre-Script: (MODIFY AS NEEDED FOR INCIDENT CONDITONS)

- 1. The _____(*name*) has issued the following advisory for those who live, work, or are visiting the County.
- 2. Due to the threat of ______, it may be necessary for people who live, work or are visiting in the certain local areas to evacuate in the near future. This area(s) that may be at risk include:

(DESCRIBE AREA BOUNDARIES)

- 3. Evacuation is NOT being recommended at this time. Local officials will advise you if evacuation is necessary. However, you should be prepared to evacuate if needed. To prepare you should assemble the following emergency supplies:
 - Clothing for your family for several days
 - Bedding, pillows, and towels
 - Prescription medicines and spare eyeglasses
 - Soap and toiletries
 - Baby food and diapers
 - Your address book or list of important telephone numbers
 - Your checkbook, credit cards, and cash
 - Your driver's license and identification cards
 - A portable radio and flashlight

You should also:

- Gather suitcases, boxes, or bags to hold your emergency supplies
- Be prepared to secure your home or office and your property before you depart.
- Ensure your car is in good shape and have adequate fuel
- Deicide where you will go if you have to evacuate. Make arrangements with relatives or friends or consider making hotel or motel reservations.
- 4. Potential evacuation routes form the area(s) at risk include:
- 5. Potential evacuation routes from the area(s) at risk are described in:
- 6. If you know of any neighbors or co-workers with hearting or language problems or special needs, please advise them of this message. And if you have a neighbor or co-workers who do not have transportation, offer to assist them if you can.
- 7. We want to emphasize that this an Evacuation Warning Special Advisory message about a possible evacuation. Evacuation is NOT being recommended at this time.
- 8. Keep your radio or TV on and listen for further information about this situation. Please do not call [911] or local emergency officials for information.

EVACUATION ORDER – MANDATORY OR NO-NOTICE Pre-Script:

- 1. The _____(*name*) has issued the following advisory for those who live, work, or are visiting the County.
- 2. **NO-NOTICE use:** Due to ______, local officials have recommended that people who live, work or are visiting in the following areas evacuate immediately to protect their safety and health.

(DESCRIBE AREA BOUNDARIES)

- 3. **IF TIME**: If phased evacuation (time allows) use: #4 instead of #3.
- 4. Due to ______, local officials have recommended that people who live, work or are visiting in the following areas evacuate by ______ to protect their safety and health.

(DESCRIBE AREA BOUNDARIES)

- 5. Use the following evacuation routes: (LIST OUT ROUTES)
- 6. You should take the following emergency supplies with you: Clothing for your family for several days Prescription medicines and spare eyeglasses Baby food and diapers Your address book or list of important telephone numbers Your checkbook, credit cards, and cash Your driver's license and identification cards Valuable papers A portable radio and flashlight
- 7. Do not delay your departure if you don't have time to evacuate.
- 8. Take your pets with you, bring a leash, crate if you can.
- 9. If you have no means of transportation or if you are physically unable to evacuate on your own, call _________ for assistance.
- 10. If you don't have another place to stay, temporary shelters will be or have been opened at:

^{11.} If time secure your property before you depart. Shut off all appliances, except refrigerators, and freezers.

^{12.} If you know of any neighbors or co-workers with hearting or language problems or special needs, please advise them of this message. And if you have a neighbor or co-workers who do not have transportation, offer to assist them if you can.

^{13.} IF TIME CLOSE USE: Stay tuned to this station for more information and instructions from local officials. Please do not call [911] or local emergency officials for information.

^{14.} IF NO-NOTICE USE: Evacuate immediately. Please do not call [911] or local emergency officials for information.

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MASS EVACUATION, SHELTERING, AND RE-ENTRY PROGRAMS

SHELTER SITE PLANNING CHECKLIST

	_					01 (210)
NAME OF FACILITY		ADDRESS OF FACILITY			SIT	E MAIN PHONE NO.
SCHOOL DISTRICT		NAME AND TITLE OR PERSON IN CHARGE			PE	RSON IN CHARGE PHONE NUMBER
SCHOOL DISTRICT POLICE CHIEF	POLICE	CHIEF PHONE NO.		FACILITY POLICE PHONE N).	SCHOOL DIST DISPATCHER PHONE NO.
MANAGEMENT-SITE DIRECTOR'S OFFIC	E LOCATI	ON (ROOM NO.)	SITE DIRECT	TOR OFFICE COMPUTER	S	ITE DIRECTOR'S OFFICE PHONE NO.
SECURITY-SECURITY DIRECTOR'S OFFI	CE LOCA	TION (ROOM NO.)	SECURITY D	IRECTOR OFFICE COMPUTER	S	ECURITY DIRECTOR'S OFFICE PHONE NO.
DESCRIPTION OF FACILITY & NO. BUILD	INGS, BO	UNDARY STREETS, ETC.				
SCHOOL DISTRICT POLICE ON SITE (INC	CLUDE NU	JMBER ON DUTY)				
1. BACKUP 2. SECURITY CAMERAS	3. CLO	SED CIRCUIT TELEVISION	SYSTEM	4. PUBLIC ADDRESS SYSTEM	1	5. NO. OF PHONE LINES INTO FACILITY
COMMENTS: INCLUDE FUEL CAPACITY (OF GENEI	RATOR, LOCATION OF CAI	MERAS, LOCA	TION OF PHONE JACKS, ETC.		
COMPUTERS AVAILABLE INCLUDE NUM	BERS LO	CATIONS, AND INTERNET	CONNECTIVI	TY, LAB (ROOM NO.)		
ARE BUILDING DIAGRAMS AVAILABLE?	2					
u YES U NO						
PUBLIC PARKING LOT- # OCATION NO O	VELOTS I					
POBLIC PARKING LOT: (COCATION, NO. C	JF LOTA, I	NO. OF SPACES)				
PUBLIC ENTRANCE						
INTAKE SCREENING/TRIAGE (LOCATION	0					
PUBLIC QUEUING LINE:					_	
						NFPA 1616 (p. 1 of 2



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2 21 41 4	1.1.1	A.,

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MEDS. DISPENSING STATIONS PLACEMENT (LOCATION) INCLUDE ROOM NUMBER
PUBLIC FXIT
RESTROOMS (PUBLIC) NO OF MALE/FEMALE/ACCESSIBLE (ARE OLITROOR PORTABLES NEEDED?)
The street of th
STAFE AND VOLUNTEER PARKING LOT: (NO OF SPACES)
STAFE AND YOL INTEED ENTRANCE
RESTROOMS (STAFF & VOLUNTEERS)
MEAL DELIVERY ENTRANCE
CAFETERIA FOR VOLUNTEERS
CHILD/ELDER CARE AREA FOR VOLUNTEERS (ROOM NO.)
LOADING DOCK OR SUPPLY DELIVERY ABEA/ENTRANCE
SUPPLY STORAGE AND SECURE AREA
WALK-IN COOLER (LOCATION)
MEDIA STAGING AREA
EMERGENCY AMBULANCE EVACUATION POINT
HELIPAD LOCATION
RESTRICTIONS
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FIGURE E.2.2(a) Continued

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MASS EVACUATION, SHELTERING, AND RE-ENTRY PROGRAMS

SAMPLE EQUIPMENT CHECKLIST

Water Coolers:
Folding Tables and Chairs:
Beds or Cots:
Ice Machine:
Portable Emergency Lights:
Lockable Storage Area for Equipment:
Materials Handling Equipment (Hand Trucks, Pallet Jacks, etc.)
Portable Toilets: (outdoors)
Extension Cords:
Traffic Cones:
Traffic Barricades:
Emergency Parking Restriction Signs:
Pedestrian Control Signs:
Police Line Tape:
Phone Lines:
Fax Machine Lines:
MEGA SHELTER = 30,000 Sq feet + for sleeping area
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FIGURE E.2.2(b) Sample Equipment Checklist.

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