

Clark County Fire Department Pre-plan Selection Process

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CERTIFICATION STATEMENT

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

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Abstract

The Clark County Fire Department (CCFD) is one of the busiest fire departments in the United States. With a call volume so high and personnel numbers so low, it is imperative the CCFD used its personnel's time wisely. The problem was the Clark County Fire Department's pre-plan program allowed Company Officers (COs) to pre-plan any building in their first-in area without regard for significant economic impact to the community or risk to firefighter safety. The purpose of this research was to evaluate if critical infrastructure in an officers response area were being completed. To achieve this the following questions needed to be answered:

1. What was the procedure for selecting buildings to pre-plan in the CCFD's pre-plan program?
2. What structures in Las Vegas posed the largest threat to life safety?
3. What internal barriers existed that prevented COs from pre-planning more complicated buildings?
4. What percentage of Class 1 Hazardous Material Sites had been pre-planned and were available to COs during an emergency?
5. What percentage of high-rises properties on the Las Vegas Strip had a completed pre-plan?

Evaluative research was used to analyze the department's pre-plan program and determine if critical infrastructure was being pre-planned using the current methodology, or the process needed to be modified to more accurately address the needs of emergency responders and the community. A survey was created and sent to all Captains and Battalion Chiefs to determine how and why buildings were selected to be pre-planned.

The results established the current method being used did not yield the most significant buildings being pre-planned. The recommendations utilized a prioritization matrix to evaluate the pre-plan program to determine if it should be continued, suspended or terminated.

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Clark County Fire Department Pre-plan Selection Process

The Clark County Fire Department (CCFD) protects the largest portion of the Las Vegas valley. Millions of visitors come to Las Vegas each year to enjoy all the city's world-class amenities including some of the largest hotels and nightclubs in the world. In addition to the famous Las Vegas "Strip," two million residents call Las Vegas home. With infrastructure in place to support the residential population and extremely large and difficult to navigate hotels, pre-plans are imperative to the department's performance. The problem is the Clark County Fire Departments current pre-plan program allows COs to pre-plan any building in their first-in area without regard for significant economic impact to the community or risk to firefighter safety. The purpose of this research is to evaluate if critical infrastructure in an officers response area was being completed. To achieve this, the following questions need to be answered:

1. What is the procedure for selecting buildings to pre-plan in the CCFD's current pre-plan program?
2. What structures in Las Vegas pose the largest threat to the life safety?
3. What internal barriers exist that prevent COs from pre-planning more complicated buildings?
4. What percentage of Class 1 Hazardous Material Sites have been pre-planned and are available to COs during an emergency?
5. What percentage of high-rise properties on the Las Vegas Strip have a complete pre-plan?

Evaluative research will be used to analyze the department's current pre-plan program and determine if critical infrastructure was being pre-planned using the current

methodology, or the process needs to be modified to more accurately address the needs of emergency responders and the community.

Background and Significance

The Clark County Fire Department (CCFD) is the largest fire department in Nevada. The CCFD is a combination department that protects just less than 8,000 square miles of land. Approximately 300 square miles of which make up the urban response area. Clark County is also home to the famed Las Vegas Strip, as well as McCarran International Airport. McCarran International Airport is the nation's eighth busiest airport and welcomed over 40,000,000 visitors to the Las Vegas valley in 2014 (CCFD, n.d.).

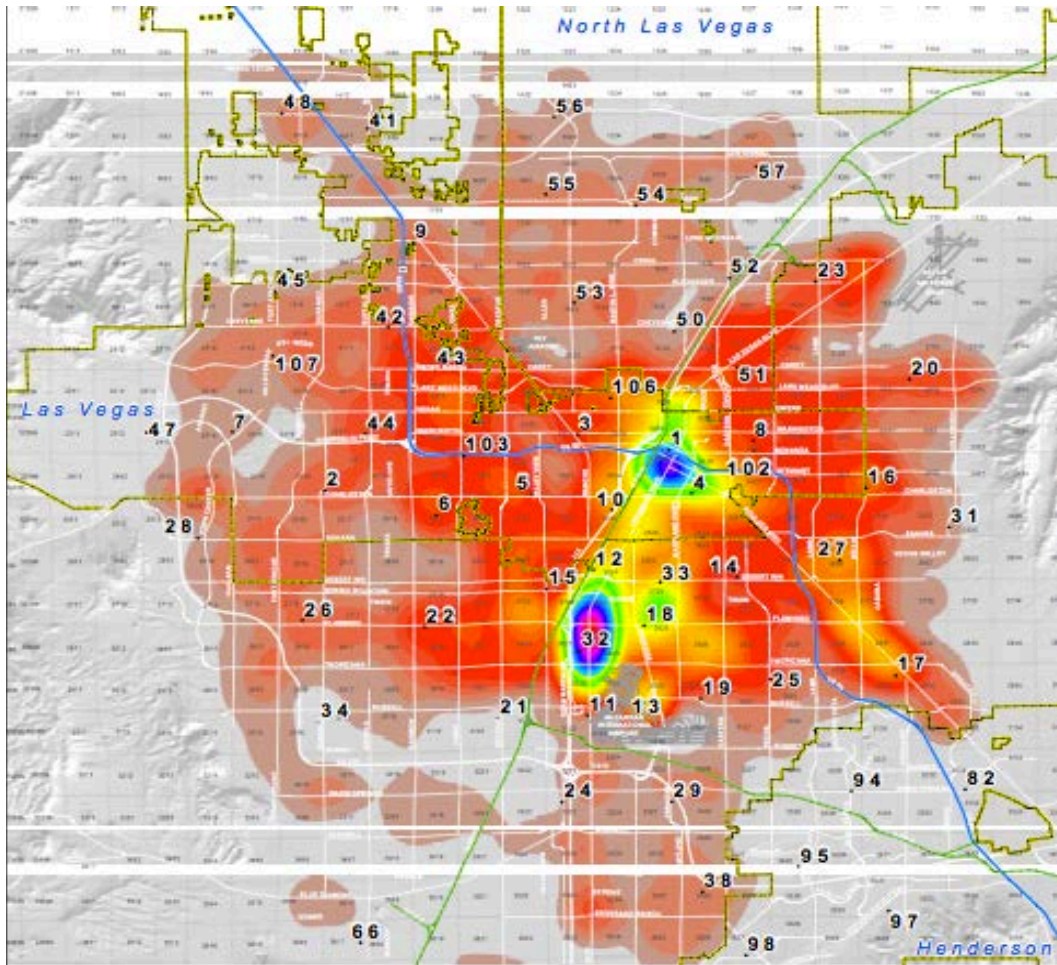
On November 23, 1953 the CCFD was established with one station. As of September of 2014, the CCFD has 29 full-time fire stations and over 800 personnel, including approximately 650 firefighters, 88 prevention and investigation officers, and 70 administration, training and support staff. The department also oversees the state's largest volunteer force with nearly 200 personnel, who serve in the rural parts of the County at 13 volunteer stations (CCFD, n.d.).

The CCFD offers the following services to the community it serves: urban fire rescue, rural fire rescue, aircraft rescue firefighting, emergency medical services including advanced life support response from every urban fire apparatus, urban search and rescue team (FEMA National Response Team), fire prevention (including permits, inspections and plan reviews), fire investigations, disaster and emergency preparedness and public education (CCFD, n.d.).

The mission of the CCFD is to provide for the safety and health of our Southern Nevada Communities and our visitors through professional emergency response, fire prevention and public education (CCFD, n.d.). This ambitious statement resonates the core values of the fire service industry. At the heart of the CCFD's core values is protecting lives. The vision of the CCFD is to be a global leader in the fire service and provide the safest community and resort destination in the world (CCFD, n.d.).

McCarran International Airport welcomed over 40,000,000 visitors in 2014. Using statistics compiled by Las Vegas Convention and Visitors Authority from the years 2007-2011, 76% of visitors who arrive at McCarran International Airport stay in the hotels that comprise the famous Las Vegas Strip (GLS Research, 2011). With roughly 30,000,000 visitors staying on the Las Vegas Strip each year, it is not surprising that the hospitality industry is the largest employer in Clark County. With that many visitors staying on the Las Vegas Strip, it also produces the highest frequency of emergency responses. Figure #1 illustrates the call concentration for the Las Vegas Valley. The one square mile districts that surround Fire Station 32, which is located in the heart of the Strip, generate 7,500 responses each annually. Figure #1 shows that a majority of the 160,000 emergency responses handled by the CCFD are occurring along the Strip Corridor.

Figure 1: Las Vegas Valley- Call Concentration

*Figure 1 (CCFD, n.d.)*

The CCFD, like most fire departments in the United States, has always done some type of pre-planning. In the past, pre-plans consisted of individual crews visiting sites in their first-in area and sketching out, with pencil and graph paper, a general building outline and significant features of the structure. These sketches were passed on over the years as officers moved to different areas of town or retired. In 2007 some of these plans were still being used as the primary pre-plan for multi-million dollar hotel/ casinos on the Las Vegas Strip.

In fall of 2007, the CCFD organized its first formal pre-plan program. The goal was to develop a systematic approach to developing pre-plans for all high-rise properties in Clark County's jurisdiction. Because this was believed to be an insurmountable task, the project was broken down into phases as suggested in NFPA 1620, 1.3.4 (NFPA, 2010). The project design was fairly straightforward; Step 1 (Phase I) was to develop an inventory of all high-rise hotels the program would cover (scope of project). Step 2 (Phase II) was to identify components on each structure that were significant to the fire department using Clark County's Geographic Information Systems (GIS) to layer symbols onto the aerial photography. Each aerial photo would have the following key fire department components identified:

1. Fire department connections
2. Fire control room
3. Entrances
4. Fire pumps
5. Hydrants

Step 3 (Phase III) was to build upon the information already acquired during Step II of the program. The next components that were to be layered onto the aerial photos were:

1. Floor plans with room numbers
2. Stairwells
3. Elevators
4. Hallway hose cabinet locations.

An inventory list of 98 high-rise properties was established. A priority rating system was put in place based on NFPA 1620. The properties were prioritized using section 4.1.9 of NFPA 1620 (2010) which states that when establishing a program the following areas shall be considered:

1. Potential life safety hazard, including emergency responder safety
2. Structure size and operations complexity
3. Economic impact
4. Importance to the community
5. Location and seasonal variations
6. Presence of hazardous materials
7. Susceptibility to natural disasters

Once the list was established, the highest-ranking property was completed first. This process continued until the lowest ranking property was completed. Once the property was complete, it was uploaded into the computer dispatch system and pushed out to every fire department apparatus with a mobile data terminal (MDT). Once pushed to the MCT's, Phase II of the High-rise Pre-plan Program was complete.

Phase III of the program was just beginning when the program was terminated by the new Fire Chief at the end of 2011. As of the writing of this paper, no new high-rise pre-plans have been produced since 2011, even with the addition of multiple new multi-million dollar hotels/casinos along the Strip Corridor.

In 2012, a new push for pre-plans began to gain traction. According to the project manager, the driving force behind the new program was twofold: gather information for Battalion Chiefs and get crews out into their first-in area to start the conversation about

tactics at the company level (personal communication, project manager, 9-10-2014).

During the design phase of this project, it was decided that fire prevention would provide lists of buildings that needed to be pre-planned based on the types of permits requested. Fire prevention would forward the information to suppression crews and those buildings would be pre-planned by suppression crews. A large list of properties was generated by the fire prevention department and sent to suppression crews to start the program. In addition to providing locations for suppression crews to pre-plan, fire prevention was to conduct their own pre-plans of target hazards and provide those plans to suppression crews (personal communication, project manager, 9-10-2014).

Unfortunately, most of the addresses provided by the fire prevention department either did not exist or were single-family dwellings (that suppression crews were directed not to pre-plan). After multiple attempts to obtain accurate information from the fire prevention department, the project manager decided to remove fire prevention's involvement in the program and try to salvage the program using suppression crews only (personal communication, project manager, 9-10-2014). After much frustration, the project manager stepped down at the beginning of 2013 and was not replaced (personal communication, project manager, 9-10-2014).

In fall of 2013, the Senior Deputy Chief of the CCFD decided the unmanaged pre-plan program should become a way to measure suppression crew performance. The new performance standard was three pre-plans a month, per engine and truck company (personal communication, senior deputy chief, 11-8-2014). Since the list provided by the fire prevention department were deemed unusable, what was to be pre-planned was left to the COs discretion. The company officer now had competing values to contend with, on

one hand the officer was required to complete three pre-plans a month. On the other hand, the officer wanted to conduct pre-plans in buildings that created life safety concerns, were large and complex and were important to the economy. These types of pre-plans took a tremendous amount of time and effort to complete and with Clark County being one of the busiest departments in the United States, time was difficult to find. According to project manager, “this has lead to a bastardization of what we were trying to achieve” (personal communication, project manager, 9-10-2014).

Since the performance measure tag had been applied to the pre-plan program, officers felt that if they did not deliver on the established quota of three pre-plans a month they were going to be disciplined for not completing their assigned task. Officers began to lean toward buildings that were faster and easier to complete so they could accomplish their quota without repercussions (personal communication, captain A, 12-22-2014).

The significance of the unguided pre-plan program is far reaching. “Too often, projects will get initiated without much consideration other than, it seems like a good idea (Stanleigh, 2010).” The scope of the project is unknown and COs are stuck in the middle trying to respond to emergencies, train their crews and still achieve their pre-plan quotas.

The future of the CCFD appears bleak, a continued budget deficit is projected and a continued increase in call volume is expected. At some point in the near future, the department will need to examine what programs they can afford to continue and what programs should be modified or suspended.

This research is consistent with the primary topic of Unit 2 of the Executive Analysis of Fire Service Operations in Emergency Management course “Community

Hazards Emergency Response-Capability Assurance Process” enabling objective #3 “Identify key community resource shortfalls to respond to a critical infrastructure hazard site” (National Fire Academy, 2014). This research meets the U.S. Fire Administration’s goal to “Improve local planning and preparedness” by identifying high-risk groups and target hazards (USFA, 2010).

Literature Review

Question # 1--What procedure is being used to select buildings to pre-plan in the CCFD’s current pre-plan program?

The CCFD is a unique organization with needs that transcend its recorded population base. The recorded number of residents in Clark County, which is the largest part of Las Vegas, in 2013 was just under one million (914,563), but when the daily tourist population is added it jumps to 1,023,243 (CCFD, n.d.). With these numbers comes a tremendous responsibility to protect not only the citizens we serve but also the 40 million visitors that help drive the Las Vegas valley’s economy.

With a large population comes the added challenge of a high call volume. In 2013 the CCFD ranked as the 15th busiest fire department in the United States (CCFD, n.d.). What is most unique about this ranking is that the CCFD responds to this large number of emergency responses (141,766) with only 639 firefighters. Table 1 shows that of the 14 fire departments in the United States that respond to more emergency responses than the CCFD, only one (San Francisco) has less than 1,500 firefighters.

Table 1: United States Fire Departments, by Call Volume

Department	Total Calls	Total Strength	Calls Per FF per year
New York, NY	1,789,023	15,116	118
Chicago, IL	739,867	5,141	143
Houston, TX	569,308	3,736	152
Los Angeles City, CA	406,088	3,641	111
Dallas, TX	359,679	1,700	211
Los Angeles County, CA	329,119	4,713	69
Philadelphia, PA	279,019	2,163	128
San Francisco, CA	271,914	1,412	192
Miami-Dade, FL	238,729	2,431	98
Phoenix, AZ	171,975	1,924	89
San Antonio, TX	168,337	1,824	92
Washington, DC	167,335	1,998	83
Baltimore City, MD	159,874	1,597	100
Columbus, OH	143,853	1,544	93
Clark County, NV	141,766	639	221
St. Louis, MO	136,224	823	165
Prince George's County, MD	132,930	2,110	63
San Diego, CA	129,042	863	149
Memphis, TN	128,757	1,742	73
Jacksonville, FL	122,930	1,205	102
Palm Beach County, FL	120,280	1,490	80
Orange County, CA	112,333	1,174	95
Nashville, TN	107,857	1,160	92
Kansas City, MO	107,712	1,237	87
Denver, CO	105,920	943	112
DeKalb County, GA	101,202	626	161
Orange County, CA	100,554	1,174	85
Charlotte, NC	95,692	1,160	82
Fort Worth, TX	93,283	931	100
Miami, FL	92,675	772	120

Table 1 (CCFD. n.d.)

With response numbers so high and personnel numbers so low, the need to prioritize what additional tasks firefighters will be responsible for is paramount.

Stanleigh (2010) suggests developing a systematic approach to prioritizing each project an organization would like to accomplish. Stanleigh (2010) explains that frequently projects will get implemented because “it seems like a good idea” without considering

the cascade effect it will have on personnel and the community. When every project is considered important, it creates an overflowing-plate syndrome (Horwath, 2014).

Like Stanleigh, the University of Wisconsin (UOW) recognized the importance of focusing time on tasks that are highest on their priority list and have developed a standard to follow when the amount of work that needs to be done exceeds the personnel available to actually do the work (Gosenheimer, 2012). UOW recognized that departments were struggling to accomplish their constantly growing amount of projects and still deliver on their core responsibilities. The CCFD's core responsibilities can be found in its mission statement which states it will provide for the safety and health of our Southern Nevada Communities and our visitors through professional emergency response, fire prevention and public education (CCFD, n.d.).

Horwath (2014) explains organizations that do not prioritize responsibilities often suffer from frustration and feeling overwhelmed. He goes on to explain that lack of priorities prevent individuals from taking things off their plate. UOW developed a prioritization matrix that provides organizations a way to sort projects into an order of importance. "The matrix provides a means for ranking projects (or project requests) based on criteria that are determined to be important. This enables a department to see without a doubt which projects are the most important to focus on first, and which, if any, could be put on hold or discontinued" (Gosenheimer, 2012). Gosenheimer (2012) states the benefits of using a prioritization matrix include:

1. Helps prioritize complex or unclear issues when there are multiple criteria for determining importance.
2. Provides a quick and easy, yet consistent, method for evaluating options.

3. Takes some of the emotion out of the process.
4. Quantifies the decision with numeric rankings.
5. Is adaptable for many priority-setting needs (projects, services, personal, etc.)
6. When used with a group of people, it facilitates reaching agreement on priorities and key issues.

The important concept that needs implementation is a shift from responding to the day's events to planning since the planning process will ensure you achieve your organizational goals and objectives (Stack, 2000). Private business use time management techniques to ensure they are able to free up time for the really important things that need to occur (Stack, 2000). To do this, tasks must be listed in order of importance, because if you neglect to prioritize items that need to be accomplished, trivial and time consuming activities will push the critical items off to another day or not at all (Stack, 2000).

The National Fire Protection Association suggests prioritizing properties to be pre-planned using section 4.1.9 of NFPA 1620 (2010). It states when establishing a pre-plan program the following areas shall be considered:

1. Potential life safety hazard, including emergency responder safety
2. Structure size and operations complexity
3. Economic impact
4. Importance to the community
5. Location and seasonal variations
6. Presence of hazardous materials
7. Susceptibility to natural disasters

In addition to the NFPA standard the International City Management Association (ICMA) has stated the first step in developing pre-fire plans is to establish a list of target hazards (Galvin, 2007). Many organizations underestimate how large a project may be and resources required to complete the task. Figure 2 illustrates a project life cycle and Stangleigh (2010) explains that senior managers need to know the life cycle of the projects they are implementing.

Figure 2: Project Life Cycle



Figure 2 <http://www.method123.com/project-lifecycle.php>

The image illustrates the four main components that are located in the outer circle, but more importantly explains areas that are frequently overlooked in the inner circle. “Project Definition” is referring to the scope, or in the CCFD’s case, how many buildings are there in the pre-plan project? “Detailed Planning” is referring to prioritization of the plan, or in the CCFD’s case, which buildings create a significant life safety hazard to responders and/or could create a significant economic impact to the community if they were lost or damaged?

The CCFD's current plan began with COs being assigned buildings by the fire prevention department in their first-in area. The addresses were generated based on permit requests, and forwarded to suppression crews to pre-plan. In an e-mail from a Captain who assisted the project manager, it was decided "to leave it up to the Captain's discretion on what structures to pre-plan" because of the high number of errors that were present on the list which came from prevention (personal communication, captain B, 12-22-2014).

Question # 2--What structures in Las Vegas pose the largest threat to the life safety?

Tourism has been the largest contributor to Clark County's economy since the first hotel/casino was built. Today, conventions contribute \$7.4 billion to our annual economy, and the numbers are projected to continue to grow as the economy continues to recover (Shine, 2014). Tom Skancke, President of the Las Vegas Global Economic Alliance stated, "If (tourism) is our No. 1 industry, we must continue to have the No. 1 facilities and the best connectivity in the state, the country and the world." Shine (2014) explains while we are number one in areas, we have fallen behind in a lot of other areas.

Clark County is home to the Las Vegas Strip and McCarran International Airport, which welcomes approximately 40 million visitors a year. Since the September 11th terrorist attack on the World Trade Center, numerous extremist groups have mentioned Las Vegas as a potential site. Most recently in an article written in Inspire Magazine titled, *Car Bombs Inside America*, six specific types of sites were listed as examples of where a lone bomber should target (Staff, 2014). Second on the list of targets in the United States was, "Casinos and Night Clubs in Las Vegas (Staff, 2014)."

To accommodate the tourist market Las Vegas has built large resorts. The Las Vegas Strip is located in the CCFD's jurisdiction and has 16 of the world's 20 largest hotels. The economic impact the hotels/casinos have on the economy is irrefutable. The federal government recognized the importance of these types of sites and addressed them in a Presidential Directive.

In December of 2003, Homeland Security Presidential Directive 7 was established. Its purpose is the identification, prioritization and protection of critical infrastructure (FEMA, 2012). The purpose of the directive is to "establish a national policy of federal department and agencies to identify and prioritize United States critical infrastructure and key resources and to protect them from terrorist attacks (FEMA, 2012)." The State of Nevada has a Division of Emergency Management – Homeland Security division. It has a critical infrastructure plan that includes:

1. Identifying public and private sector resources that meet the definition of critical infrastructure.
2. Determine thresholds for each sector that define when a particular asset is considered critical.
3. Develop a methodology for prioritizing resources and create a ranked list of critical infrastructure.
4. Identify vulnerabilities in critical infrastructure sectors and methods for security protection planning.
5. Be aware of other locations of interest throughout the state that may not meet the specific DHS guidelines (Division of Emergency Management- Homeland Security, n.d.).

In fall of 2007, the CCFD organized its first formal pre-plan program. The goal was to develop a systematic approach to developing pre-plans for all high-rise properties in Clark County's jurisdiction. Approximately one year after the start of the high-rise pre-plan program, a company named Silver Shield was contracted by the State of Nevada to expedite the State's Critical Infrastructure Protection Program. Silver Shield approached the CCFD and desired to exchange information regarding the high-rise hotels on Las Vegas Blvd. Silver Shield's mission has evolved from conducting site assessments to, "identify, prioritize, and assess risk regarding infrastructure..."(Division of Emergency Management- Homeland Security, n.d.). Current Silver Shield objectives include:

1. Identify, capture and catalog Critical Infrastructure/ Key Resources (CI/KR) in Nevada.
2. Assist public and private sectors in formulating and updating emergency response plans.
3. Ensure that emergency response plans are available to dispatch and first responders.
4. Establish an ongoing Infrastructure Liaison Officer (ILO) information exchange program.
5. Establish community education program and centralize report collection.
6. Deploy the Terrorism Liaison Officer (TLO) awareness campaign.
7. Develop framework for sector cooperation and information protection of CI/KR data.
8. Conduct assessment of state surface transportation assets in urban centers

9. Integrate CI/KR protection process into planning for special/major events
(Division of Emergency Management- Homeland Security, n.d.).

Question # 3--What internal barriers exist that prevent COs from pre-planning more complicated buildings?

The CCFD, as the authority having jurisdiction, is responsible for inspecting all buildings within Clark County to ensure they are compliant with the fire code. On December 18, 1998, the CCFD wrote, Standard Operating Procedure (SOP) 3.2, Annual in-service business inspections (See Appendix A). This document was the first to specifically state, "All business and commercial properties are to be inspected annually by shift personnel (businesses exempt from in-service inspections are noted on page 11)." The SOP provided guidance on common violations for COs to follow. Section V of the SOP plainly articulates what occupancies suppression personnel were not required to inspect. There were nine areas listed under Section V that were the fire prevention departments duty to inspect:

1. Buildings four or more stories in height.
2. Large hotel/ casino complexes (with or without high-rises).
3. Movie theaters.
4. Churches.
5. Flammable liquid tank farms.
6. Nevada state, public, and private schools.
7. Hospitals.
8. Childcare, foster homes, convalescent homes.

9. Places of public assembly over 5,000 sq. ft., i.e., Las Vegas Convention Center, Thomas & Mack, Silver Bowl, etc.

On April 6, 2006, the annual in-service business inspection SOP was revised (see Appendix B). While much of the document remained the same, there were notable changes. The most important change was the deletion of Section V's list of nine areas that were fire prevention's responsibility to inspect. However, under Specific Procedures, Section B still states: "B. All business and commercial properties are to be inspected annually by shift personnel (businesses exempt from in-service inspections are noted on page 11)." This was the exact same language from the old SOP that referred to what fire prevention was responsible for inspecting.

Horwath (2014) explains in his book on advanced strategic thinking that most companies face strategy challenges. He goes on to list his top ten strategic challenges companies face and in that list, at number ten is: Unclear company direction. He suggests it is difficult for business managers (COs) to set strategy if there isn't a clear direction set from the corporate level. In an interview with the Senior Deputy Chief of the CCFD the question was asked, what criteria should be used by COs to select buildings to pre-plan? His initial answer was target hazards. He elaborated on his answer, explaining that COs should be out inspecting high-rise buildings, senior living facilities and places where large groups gather (personal communication, senior deputy chief, 11-8-2014).

Question # 4--What percentage of Class 1 Hazardous Material Sites has been pre-planned and is available to COs during an emergency?

Hazardous material facilities, whether public or private, have been the site of numerous tragedies in the United States. Congress has historically provided disaster relief funding after large-scale incidents occur (Hazard Mitigation Planning, 2000). The Pre-disaster Mitigation Act of 2000 (Public Law 106-390) discusses the importance of planning for these types of events and emphasizes pre-planning for disasters (Congress, 2011). In a 2005 report by the Multi Hazard Mitigation Council, they found that one-dollar invested in hazard mitigation yielded approximately four dollars in benefits (Congress, 2011). The report goes on to project that federal grants for hazard mitigation awarded between 1993 and 2003 would save more than 220 lives and prevent nearly 4,700 injuries over the next 50 years (Congress, 2011).

Nevada's Division of Emergency Management has its own Critical Infrastructure Protection Plan (CIPP). Its CIPP includes five major objectives, one of which states, "Develop a methodology for prioritizing resource and create a ranked list of critical infrastructure" (Division of Emergency Management, n.d.). Critical infrastructure is divided into 18 sectors including chemical and hazardous materials by the State (Division of Emergency Management, n.d.).

In the fall of 2007, at the same time the first high-rise pre-plan program was starting, hazardous material inspectors began pre-planning hazardous material sites. The primary difference between the two programs was how the information was being catalogued (personal communication, GIS analyst, 12-17-2014). The hazardous material information was being entered into a software program called ArcReader and the high-rise information was being built into PDF format. ArcReader allowed for more sophisticated layering of information, but was unreadable on the hardware currently

being used in all CCFD apparatus (personal communication, GIS analyst, 12-17-2014).

The high-rise PDF's could be downloaded to the hardware the same day they were completed and available for all to view immediately.

Question # 5--What percentage of high-rise properties on the Las Vegas Strip have a complete pre-plan?

The National Fire Protection Association reported that between the years 2007 and 2011 there were 15,400 reported high-rise fires, which resulted in 46 civilian deaths (Hall, 2013). In Hall's (2013) executive summary written for the NFPA on high-rise fires, he states that the property damage average is inflated due to one fire that occurred in 2008, which had a dollar loss of 100 million dollars. That 2008 fire occurred in Clark County at the Monte Carlo Hotel on the Las Vegas Strip.

The U.S. Fire Administration's Special Report on Operational Considerations for High-Rise Firefighting suggests that fire departments conduct pre-plans of their high-rise buildings before an event occurs (FEMA, 1996). In NFPA's Guidelines to Developing Emergency Action Plans for All-Hazard Emergencies in High-Rise Office Buildings, it recommended that every building have an Emergency Action Plan (EAP) (NFPA, 2014).

Cities across the United States understand the importance of pre-planning critical infrastructure. The City of Bellevue, WA in its High Rise Emergency Handbook, explains that the development of an Emergency Operations Plan should not be developed during the stress of an emergency (Bellevue, n.d.). In Structural Firefighting: Strategy and Tactics (n.d.), published by Jones and Bartlett, there is an entire section dedicated to developing building-specific high-rise pre-plans. The book suggests floor layouts be obtained and catalogued during the pre-plan process and available for responding

apparatus. The cities of Minneapolis, MN; Bellevue, WA and Chicago, IL each require floor plans (Minneapolis Fire Department, 2001, City of Bellevue, n.d., City of Chicago, n.d.).

To summarize the literature review, this researcher concludes that the CCFD is an extremely busy department with limited resources. As such it is imperative the CCFD use its resources wisely. A comprehensive evaluation of what the CCFD spends its time doing, when not responding to emergency responses could assist the department in achieving its overall mission.

Procedures

Prior to attending the Executive Analysis of Fire Service Operations in Emergency Management course, this researcher had identified a problem within the CCFD's pre-planning program. The identification of the issue led to the development of broad problem and purpose statements and five tentative research questions.

Once on campus at the National Fire Academy with a problem and purpose statement, the process of narrowing down research began at the learning resource center (LRC). Utilizing the LRC's online card catalog, past and present pre-plan research was analyzed in an attempt to uncover similar research.

Upon returning from the NFA, a literature search was conducted using the Internet and Clark County's intranet. Multiple research sessions were conducted between September 2014 and January 2015. Google and Bing were the primary search engines used to search the following search terms: Fire Service Pre-plans, Project Management Teams, NFPA 1620, Prioritization of Projects, Time Management Skills, High-rise Pre-plans, Haz-mat Pre-plans, Las Vegas Tourism, Homeland Security Presidential

Directives, Homeland Security and Las Vegas, Silver Shield, Strategic Thinking and Critical Infrastructure Protection Plans.

Pre-planning is a common occurrence in most fire service organizations, but the CCFD's pre-plan program was still relatively new. All pre-plans completed within the CCFD from 2005 to 11-03-2014 were included in the scope of this applied research paper. A total of 2,272 pre-plans were reviewed. The pre-plans were divided into the following categories: Level I Haz-mat sites, High-rise buildings, and Others (which included businesses, schools, churches, government buildings, day cares, apartments, mobile homes).

Acquiring internal documents from the CCFD was included in the process. They can be found in the Appendix (A, B and D) section of this research. These documents included: SOPs and Clark County Pre-plans in CAD.

Literature review was conducted to answer the following research questions:

1. What procedure is being used to select buildings to pre-plan in the CCFD's current pre-plan program?
2. What structures in Las Vegas pose the largest threat to the life safety?
3. What internal barriers exist that prevent COs from pre-planning more complicated buildings?
4. What percentage of Class 1 Hazardous Material Sites have been pre-planned and are available to COs during an emergency?
5. What percentage of high-rise properties on the Las Vegas Strip have a complete pre-plan?

The method chosen to measure the selection process of buildings being pre-planned was a survey (see Appendix C). SurveyMonkey was the internet survey platform used for multiple reasons that included: Ease of use, familiarity for end users, price point and ability to answer survey on both desktop and mobile devices.

Question #1

To gather the information needed for the research question the following questions were asked:

1. What criteria do you use to select buildings to pre-plan?
2. How much of your monthly training hours are devoted to pre-planning?
3. Have you been given direction by the CCFD on prioritizing pre-plan sites?

Question #2

Collecting information on what sites pose the largest threat was subjective in nature and therefore quantitatively difficult to prove. Therefore, the research for this question was conducted primarily by drilling down into NFPA 1620. Multiple sections of the document are cited in the literature review with life safety being the driving factor as to why pre-plans are done and the order they should be completed.

To gather the information needed for the research question the following question was asked:

1. Are target hazards identified in your first-in area?

Question #3

The research for this question was conducted using Clark County intranet on CCFD station computers. The following process needs to be followed to extract the data utilized to answering the research question: On in-station desktop computer double click

“CCFD Training” icon. On home screen click on “SOPs.” On SOP home screen scroll down to the 300’s section at the bottom of page. SOP 301.1 “Annual In-Service Business Inspections” is located under “FIRE PREVENTION AND SPECIAL PROGRAMS.”

To gather the information needed for the research question the following questions were asked:

1. Please rank your daily activities in order of importance to YOU.
2. Please rank your daily activities in order of importance to your ADMINISTRATION.

Questions #4 and #5

These questions were researched by using the Clark County intranet on CCFD station computers. The following process needs to be followed to extract the data utilized in answering the research questions: On in-station desktop computer, double click “Sharepoint” icon. On left side of home screen under “Documents” click on “Pre-Plans.” There are 15 documents in this folder, click on the adobe file named “ccpreplans hyperlink.”

This will bring up the “Clark County Pre-Plans in CAD that have been pushed to Mobile Computers (sorted by Street Name)” page (Appendix D). Each of the 70 pages has four headings (Name, Address, PrePlan and Description) and there are between 33 and 35 entries per page for a total of 2,438. The pre-plan library was reviewed in its entirety to identify Class 1 Hazardous Material Sites that had been completed. To answer question #4, the sites identified were compared to the list of Class 1 Hazardous Material Sites provided by Clark County’s Fire Prevention division (Appendix E).

To gather the information needed for the research question the following question was asked:

1. What percentage of the pre-plans you have produced would be considered critical infrastructure sites with Clark County?

To answer question #5, the pre-plan library was reviewed in its entirety to identify high-rise structures that had been pre-planned. High-rise pre-plans in the library were compared to the previous high-rise pre-plan programs list to identify any additions or updates. It should be noted that Appendix D has only the first 2 pages of the 70 pages available. This was done intentionally in an effort to show the format of the database without printing 68 extra pages.

To gather the information needed for the research question the following question was asked:

1. Have you been taught by the CCFD how to identify critical infrastructure?

Interviews

The research survey created data for the researcher to analyze and develop information in hopes the CCFD could make better and more informed decisions. In an effort to clarify perceived insight into what the data showed, interviews were conducted with the following fire department members:

1. Senior Deputy Fire Chief (Appendix F)
2. Project Manager (Appendix G)
3. Battalion Chief (Appendix H)
4. Captain A and B (Appendix I)
5. GIS Analyst (Appendix J)

Questions focused on the areas in which each interviewee was a subject matter expert. Interviewee's are identified by title in an effort to promote holistic transferability. The qualitative data allowed the researcher to clarify the meaning and impact of the information generated during the survey collection phase of this research.

Limitations

There were two primary limitations to this research. First, due to the time constraints that exist in Executive Fire Officer research papers, results were collected at a specific point in time. Observational research over a 12-month time period would have allowed the researcher to address fluctuations in time management of the COs. In addition, it would be desirable to follow a pre-plan from the time it was identified as a site, to actual on-site inspection, in station development, arrival in Battalion Chief's office, transferred on to IT department and finally uploaded onto MDT's for COs use. This process would allow the research to track actual time invested and allow the researcher to calculate a return on investment.

Secondly, research question one was answered using a survey that had not been formally validated. While the use of invalidated surveys is common in this type of research, it does present a limitation since it has not been vetted to ensure accuracy. Although invalidated, the survey does focus on COs perceptions of the pre-plan program and therefore it is reasonable to conclude the data gathered is usable to critique program effectiveness.

Results

This research was designed to provide both quantitative and qualitative data for the organization's management. Quantitatively, data was collected and analyzed to

provide key statistical information regarding how pre-plan sites are selected and if the buildings that pose the largest dangers were being addressed or omitted. Qualitatively, interviews were conducted to provide perspective about how the CCFD pre-plan program was started and what the initial scope, goals and objectives were in an effort to make transferable recommendations as to how to improve the program. The collected data is the most up-to-date information available for CCFD administration regarding their pre-plan program.

1. What is the procedure for selecting buildings to pre-plan in the CCFD's current pre-plan program?

The Survey Monkey website was used to develop a ten question survey (Appendix C). The survey was sent to every company officer (113) and Battalion Chief (10) on the CCFD. The survey was sent on 10-12-2014, to each persons department email address with the Survey Monkey link attached. The survey collection period was from 10-12-2014 to 11-11-2014. Of the 123 emails sent, 41 or 33 % returned a completed survey.

There were four answers available to participants. Two were verbiage from NFPA 1620's section 4.1.9 on what should be considered when establishing a pre-plan program. One was directly related to time management and the fourth allowed COs to elaborate in their own words how they selected pre-plan sites.

Table 2 shows that participants weighed how much time they had to complete the pre-plan to be almost as important as the size and complexity of the building. It also illustrates the building's importance to the community has no impact on their selection criteria.

Table 2: Criteria Used To Select Buildings To Pre-plan

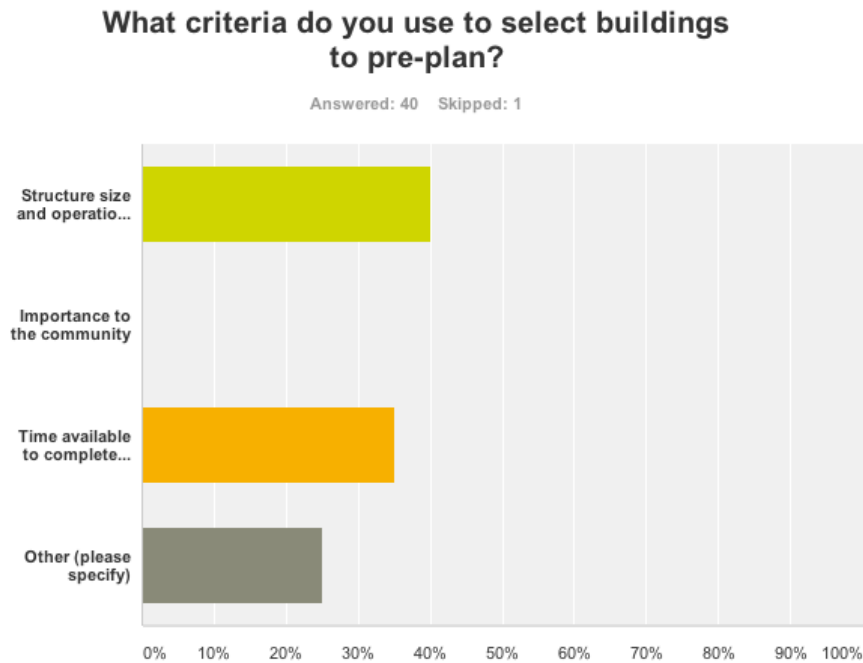


Table 3: Percentage Breakdown of Criteria Used To Select Buildings To Pre-plan

Answer Choices	Responses	
Structure size and operations complexity	40.00%	16
Importance to the community	0.00%	0
Time available to complete required amount of pre-plans	35.00%	14
Other (please specify)	25.00%	10
Total		40

The CCFD monthly training calendar allots six hours per month toward completing pre-plans (Appendix K). This is fifty percent of the prescribed training from the CCFD training division. Table 4 illustrates that COs did not follow the assigned training, instead they complete pre-plans quickly and moved on to more company level firefighting or EMS type of training.

Table 4: Amount of Monthly Training Devoted to Pre-planning

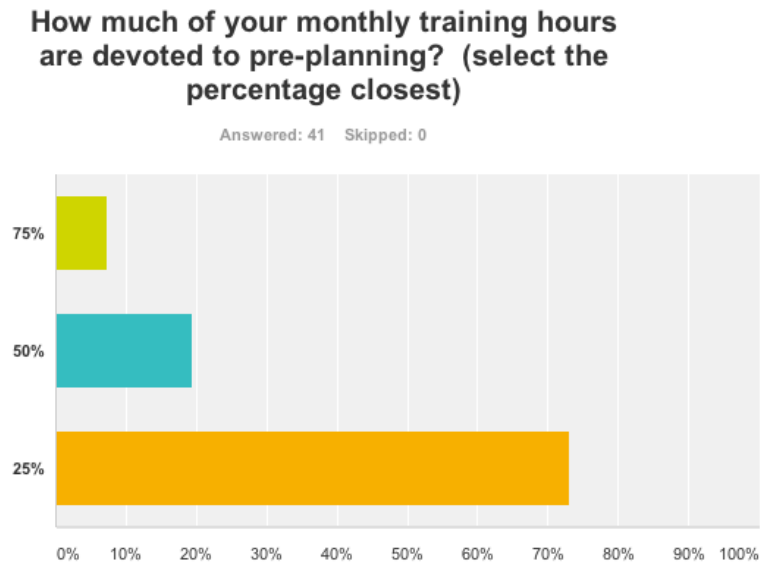


Table 5: Percentage Breakdown of Amount of Monthly Training Devoted to Pre-planning

Answer Choices	Responses	
75%	7.32%	3
50%	19.51%	8
25%	73.17%	30
Total		41

Identifying important structures in the community is a vital step in getting the most out of each pre-plan. Table 6 shows that ninety-three percent of COs have not been taught what is important to the CCFD regarding buildings they want officers spending time pre-planning.

Table 6: Direction on Prioritizing Pre-plan Sites

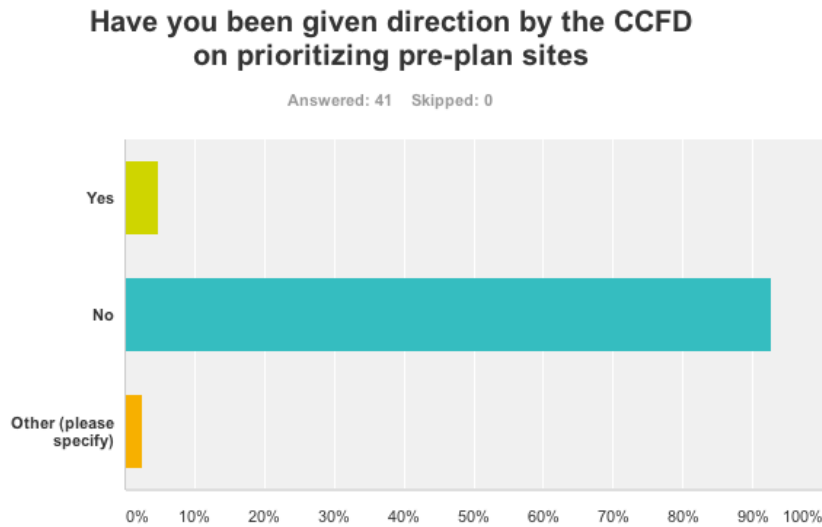


Table 7: Percentage Breakdown of Direction on Prioritizing Pre-plan Sites

Answer Choices	Responses	
Yes	4.88%	2
No	92.68%	38
Other (please specify)	2.44%	1
Total		41

2. What structures in Las Vegas pose the largest threat to the life safety?

Results for research question two were obtained by the qualitative interview process and analysis of the literature reviewed. Opinions varied from the Senior Deputy Chief interview (Appendix F) where he stated, “target hazards” should be pre-planned first, to NFPA stating “potential life safety hazards” should be the first consideration. Due to the subjectivity of what poses a threat to firefighters in Las Vegas, it was almost impossible to produce a definitive answer. However, there are general classifications of structures mentioned in NFPA 1620 that are indisputable. Section 4.9.1, subsection 2.

states, “Structure size and operations complexity” should be considered. In addition to the high-rise concern, subsection 6 states, “Presence of hazardous materials” should be considered. Clark County has 54 Class 1 Hazardous Material Sites in its jurisdiction.

Table 8 shows that over seventy percent of target hazards are identified in COs first-in area. Which should provide a starting place for COs when choosing sites to pre-plan.

Table 8: Are Target Hazards Identified

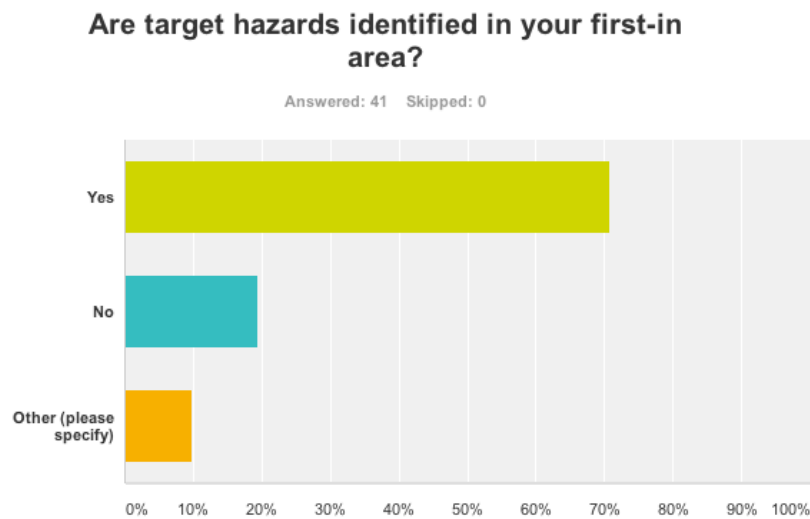


Table 9: Percentage Breakdown of Are Target Hazards Identified

Answer Choices	Responses	
Yes	70.73%	29
No	19.51%	8
Other (please specify)	9.76%	4
Total		41

3. What internal barriers exist that prevent COs from pre-planning more complicated buildings?

The Clark County SOP on annual in-service business inspections was analyzed in an effort to understand what was preventing COs from conducting pre-plans in more complicated buildings. SOP 10.1.1 dated December 18, 1998, lists in section V, the nine types of occupancies that suppression crews should not conduct in-service inspections in. They are:

1. Buildings four or more stories in height.
2. Large hotel/ casino complexes (with or without high-rises).
3. Movie theaters.
4. Churches.
5. Flammable liquid tank farms.
6. Nevada state, public, and private schools.
7. Hospitals.
8. Child care, foster homes, convalescent homes.
9. Places of public assembly over 5,000 sq. ft., i.e., Las Vegas Convention Center, Thomas & Mack, Silver Bowl, etc.

When SOP 10.1.1 was updated in April of 2006 and became SOP 301.1, the same language was left in the document explaining what businesses were exempt from in-service inspections. Although the type of occupancies are no longer specifically listed, COs continue to operate off what was listed in the past and perceived to still be true today (personal communication, Captain A, 12-22-2014).

The second barrier that prevents COs from pre-planning more complicated buildings is ideological in nature. The survey sent to all COs identified a significant difference between what they believed they should be doing on a daily basis as compared to what they believed their administration thought they should be doing.

Table 10 illustrates that COs feel their primary responsibility is to respond to emergencies (5.9 out of 6), followed by training their crews on the skills they need to be competent to respond to the various types of emergencies (5.0 for fire skills and 3.8 for EMS skills) they are called to handle. COs ranked pre-plans at 2.7 out of 6 on what they feel is important in their daily activity.

Table 10: Company Officer Daily Activity (level of importance to company officer)

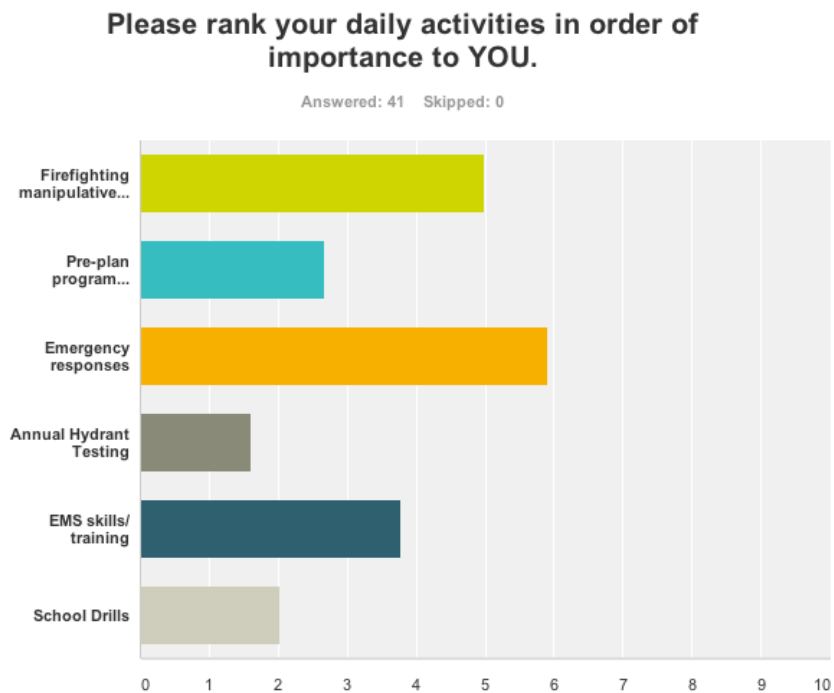


Table 11: Percentage Breakdown of Company Officer Daily Activity (level of importance to company officer)

	1	2	3	4	5	6	Total	Average Ranking
Firefighting manipulative skills/ training	7.32% 3	85.37% 35	7.32% 3	0.00% 0	0.00% 0	0.00% 0	41	5.00
Pre-plan program (selection of site, collection of data, development of plan)	0.00% 0	2.44% 1	19.51% 8	41.46% 17	17.07% 7	19.51% 8	41	2.68
Emergency responses	92.68% 38	4.88% 2	2.44% 1	0.00% 0	0.00% 0	0.00% 0	41	5.90
Annual Hydrant Testing	0.00% 0	0.00% 0	0.00% 0	12.20% 5	36.59% 15	51.22% 21	41	1.61
EMS skills/ training	0.00% 0	7.32% 3	68.29% 28	19.51% 8	4.88% 2	0.00% 0	41	3.78
School Drills	0.00% 0	0.00% 0	2.44% 1	26.83% 11	41.46% 17	29.27% 12	41	2.02

Table 12 illustrates what COs feel their administration thinks is important and, therefore, expected of the company officer on a daily basis. The most notable difference can be seen in the areas of pre-planning, fire training and emergency responses. COs gave pre-planning a 2.7 out of 6 on their level of importance, however they feel administration ranks it much higher (4.6 out of 6). In fact, it is only .33 less than what COs feel administration ranks emergency responses. COs also marked a significant decrease in their perception of administration's feelings on the importance of fire training, down from 5.0 to 2.75.

Table 12: Company Officer Daily Activity (level of importance to administration)

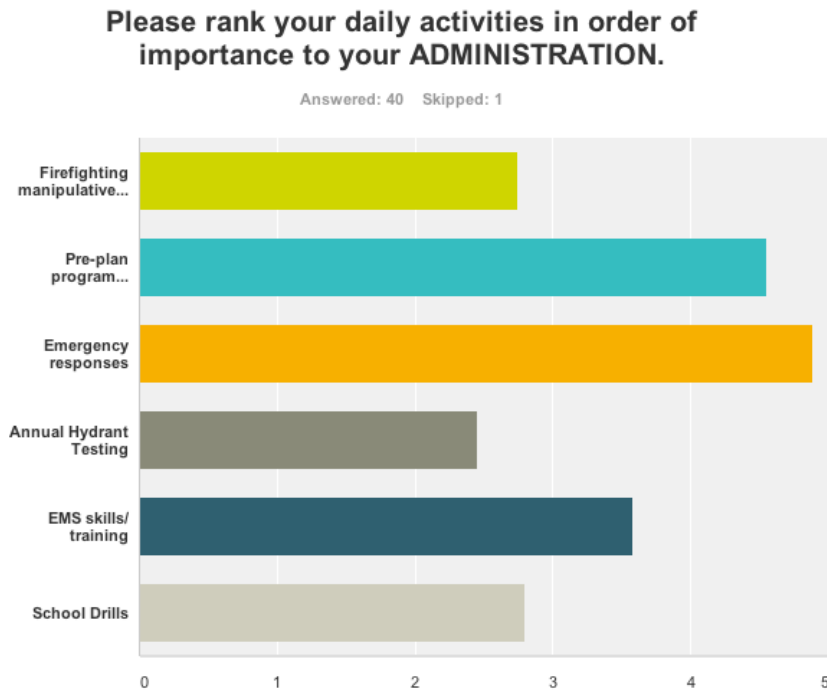


Table 13: Percentage Breakdown of Company Officer Daily Activity (level of importance to administration)

	1	2	3	4	5	6	Total	Average Ranking
Firefighting manipulative skills/ training	2.50% 1	12.50% 5	20.00% 8	15.00% 6	22.50% 9	27.50% 11	40	2.75
Pre-plan program (selection of site, collection of data, development of plan)	20.00% 8	42.50% 17	20.00% 8	10.00% 4	5.00% 2	2.50% 1	40	4.55
Emergency responses	65.00% 26	5.00% 2	5.00% 2	12.50% 5	2.50% 1	10.00% 4	40	4.88
Annual Hydrant Testing	0.00% 0	5.00% 2	17.50% 7	25.00% 10	22.50% 9	30.00% 12	40	2.45
EMS skills/ training	7.50% 3	25.00% 10	20.00% 8	20.00% 8	20.00% 8	7.50% 3	40	3.58
School Drills	5.00% 2	10.00% 4	17.50% 7	17.50% 7	27.50% 11	22.50% 9	40	2.80

4. What percentage of Class 1 Hazardous Material Sites have been pre-planned and are available to COs during an emergency?

As of the writing of this research paper, the CCFD prevention division states there are 54 Class 1 Hazardous Material Sites in Clark County. None of them are available in pre-plan format to COs when responding to an emergency at the facility.

Table 14 shows COs feel that the majority of all pre-plans conducted are not of critical infrastructure.

Table 14: Pre-plans Considered Critical Infrastructure

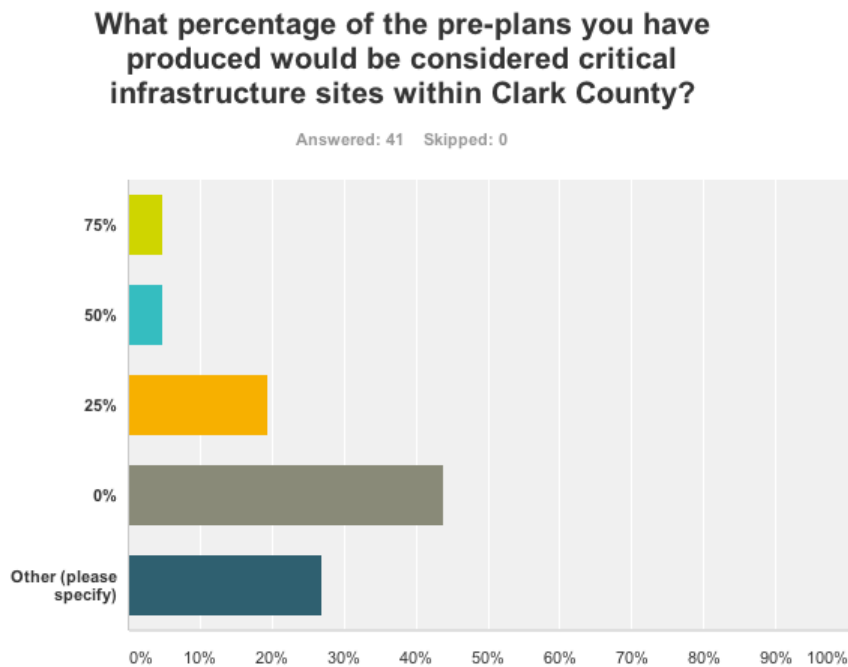


Table 15: Percentage Breakdown of Pre-plans Considered Critical Infrastructure

Answer Choices	Responses
75%	4.88% 2
50%	4.88% 2
25%	19.51% 8
0%	43.90% 18
Other (please specify)	26.83% 11
Total	41

5. What percentage of high-rise properties on the Las Vegas Strip have a complete pre-plan?

In fall of 2007, the CCFD began its first formal pre-plan program. The scope of the program was high-rise properties in Clark County, both on the Las Vegas Strip and any other area that was protected by the CCFD. The total number of properties was deemed to be 98 by the program's project management team. All 98 properties were pre-planned through Phase II of the three-phase program in just over a year. The project was suspended at the arrival of the new Fire Chief.

Since fall of 2008, there have been two major remodels on the Strip. The Link (formerly the Imperial Palace) and The Cromwell (formerly Bill's Gambling Hall and The Barbary Coast). Neither of these properties have been pre-planned using the new system or the high-rise/GIS system. However, the pre-plans from before they were remodeled are still in use and available to company officer while responding to emergencies.

Table 16 shows that eighty percent of COs have never been taught how to identify critical infrastructure in the Las Vegas Valley.

Table 16: Have You Been Taught How To Identify Critical Infrastructure

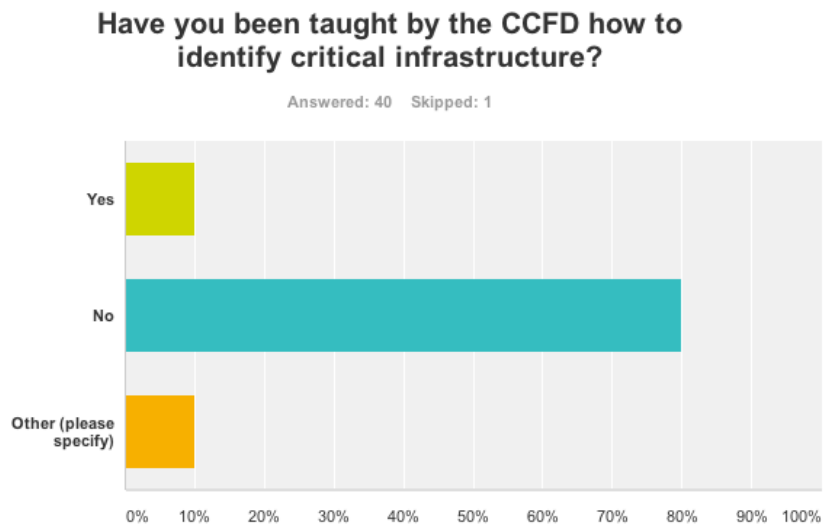


Table 17: Percentage Breakdown of Have You Been Taught How To Identify Critical Infrastructure

Answer Choices	Responses	
Yes	10.00%	4
No	80.00%	32
Other (please specify)	10.00%	4
Total		40

Discussion

Literature review and research support the hypothesis that the CCFD pre-plan program is not conducting inspections on the most significant occupancies in its response area. The findings of this research uncovered multiple structural flaws in the implementation and operation of the program. The discussion section will address each research question individually and discuss possible explanations.

The first research question asked how COs select buildings to pre-plan. COs across the United States, and especially in Clark County, are constantly being asked to do

more with less. In fact, most promotional exams require potential officers to perform some type of “in basket” exercise to see how they will prioritize activities when requests for service outnumber resources available. In the promotional exam, “in basket” exercise, requests for service get separated into stacks that are then completed by prioritizing the requests. It is this paradigm that officers find themselves in daily. The question constantly being asked is, what are the needs of the personnel on duty balanced with the requirements of the organization?

Table 1 irrefutably articulates that the CCFD is doing more with less. In fact, Dallas, TX is the only other department in the United States whose firefighters run more than 200 responses per firefighter annually (See Table 1). Somewhere between the promotional process and where the CCFD resides today, the ability to prioritize has gone awry.

The Fire Chief informed his staff that he wanted to push in-service inspections by suppression personnel (personal communication, Blackmon). Stanleigh (2010) explains that frequently projects will get implemented because “it seems like a good idea” without considering the cascade effect it will have on personnel and the community. The cascading effect in the CCFD is officers have competing values. They want to conduct pre-plans in the most dangerous buildings, but they lack the time needed to complete the task. In addition to the lack of time, they have a quota that must be met each month or potential discipline will occur. These diabolically differing values force officers to complete pre-plans in occupancies that can be completed quickly, therefore fulfilling their quota and staying out of trouble.

It appears from the literature reviewed and results obtained, pre-plans by themselves, are important to the fire service in general. The question for the CCFD is, what are they more important than? Horwath (2014) explains organizations that do not prioritize responsibilities often suffer from frustration and feeling overwhelmed. He goes on to explain lack of priorities prevent individuals from taking things off their plate. UOW developed a prioritization matrix that provides organizations a way to sort projects into an order of importance. “The matrix provides a means for ranking projects (or project requests) based on criteria that are determined to be important. This enables a department to see without a doubt which projects are the most important to focus on first, and which, if any, could be put on hold or discontinued” (Gosenheimer, 2012). The benefits of using a prioritization matrix include:

1. Helps prioritize complex or unclear issues when there are multiple criteria for determining importance.
2. Provides a quick and easy, yet consistent, method for evaluating options.
3. Takes some of the emotion out of the process.
4. Quantifies the decision with numeric rankings.
5. Is adaptable for many priority-setting needs (projects, services, personal, etc.)
6. When used with a group of people, it facilitates reaching agreement on priorities and key issues (Gosenheimer, 2012).

If the CCFD chooses to pursue a pre-plan program after filtering all their projects through a prioritization matrix, then the road map set forth in NFPA 1620 should be followed. Section 4.1.9 of NFPA 1620 (2010) lists the following areas that should be considered when establishing a pre-plan program:

1. Potential life safety hazard, including emergency responder safety
2. Structure size and operations complexity
3. Economic impact
4. Importance to the community
5. Location and seasonal variations
6. Presence of hazardous materials
7. Susceptibility to natural disasters

NFPA 1620 (2010) goes on to explain the standard should be implemented in a logical sequence based on economic factors, public safety and firefighter safety.

In addition to NFPA, the ICMA states the first step in developing pre-fire plans is to establish a list of target hazards (Galvin, 2007).

The second research question asked what structures pose the largest threat in Clark County. Using the seven key areas from section 4.1.9 of NFPA 1620 as a guide, the obvious answers are high-rise hotels/casinos and hazardous material sites. Tourism has been the largest contributor to Clark County's economy contributing \$7.4 billion annually (Shine, 2014). Infrastructure built along the Strip Corridor is critical to the County as well as the State of Nevada.

In December of 2003, Homeland Security Presidential Directive 7 was established. Its purpose is the identification, prioritization and protection of critical infrastructure (FEMA, 2012). The purpose of the directive is to "establish a national policy of Federal departments and agencies to identify and prioritize United States critical infrastructure and key resources and to protect them from terrorist attacks" (FEMA, 2012). Terrorist attacks remain a concern in Clark County. When Inspire Magazine

printed its article titled, “Car Bombs Inside America,” six specific types of sites were listed as examples of where a lone bomber should target (Staff, 2014). Second on the list of targets in America was, “Casinos and Night Clubs in Las Vegas (Staff, 2014).”

With the 2003 Presidential Directive in place, the State of Nevada Department of Homeland Security hired a company named Silver Shield to assist with its Critical Infrastructure Protection Program (CIPP). Current Silver Shield objectives include:

1. Identify, capture and catalog Critical Infrastructure/ Key Resources (CI/KR) in Nevada.
2. Assist public and private sectors in formulating and updating emergency response plans.
3. Ensure that emergency response plans are available to dispatcher and first responders.
4. Establish an ongoing Infrastructure Liaison Officer (ILO) information exchange program.
5. Establish community education program and centralize report collection.
6. Deploy the Terrorism Liaison Officer (TLO) awareness campaign.
7. Develop framework for sector cooperation and information protection of CI/KR data.
8. Conduct assessment of state surface transportation assets in urban centers
9. Integrate CI/KR protection process into planning for special/ major events

(Division of Emergency Management- Homeland Security, n.d.).

It appears from Silver Shield’s objectives, much of what they have been hired to do for the State of Nevada overlaps with what NFPA 1620 states should be in an organization’s

pre-plan program. Identifying CI/KR sites is one of the first steps that must be implemented in an organization so they can prioritize where to start their pre-planning.

The third research question asked what internal barriers exist that prohibit COs from pre-planning more complicated buildings. The primary answer to the research question was target hazards were the fire prevention department's responsibility, suppression crews were to focus on businesses (personal communication, project manager, 9-10-2014). SOP 3.2, Annual in-service business inspections that is dated December 18, 1998 supports that position. It states there were nine areas (listed under Section V of the documents) the Fire Prevention Department would inspect:

1. Buildings four or more stories in height.
2. Large hotel/casino complexes (with or without high-rises).
3. Movie theaters.
4. Churches.
5. Flammable liquid tank farms.
6. Nevada state, public, and private schools.
7. Hospitals.
8. Childcare, foster homes, convalescent homes.
9. Places of public assembly over 5,000 sq. ft., i.e., Las Vegas Convention Center, Thomas & Mack, Silver Bowl, etc.

When SOP 3.2 was updated in 2006, the exact listing of the nine types of properties were removed, but it still included "all business and commercial properties are to be inspected annually by shift personnel (businesses exempt from in-service inspections are noted on page 11)." Which was a direct reference to Section V of the SOP it was superseding.

COs are stuck trying to read between the lines to figure out what the intent of the SOP is and if it even applies to the pre-plan program at all. Since there is no SOP on pre-planning, the common approach by COs is to follow the direction set by the business inspection SOP. To confuse matters more, when the Senior Deputy Chief of the CCFD was asked, What criteria should be used by COs to select buildings to pre-plan? His initial answer was target hazards. He elaborated on his answer, explaining that COs should be out inspecting high-rise buildings, senior living facilities and places where large groups gather (personal communication, senior deputy chief, 11-8-2014).

Horwath (2014) explains in his book on advanced strategic thinking that most companies face strategy challenges. He goes on to list the top ten strategic challenges companies face. In that list at number ten is: Unclear company direction. He suggests it is difficult for business managers to set strategy if there isn't a clear direction set from the corporate level. For COs (i.e. managers) trying to provide direction to the troops doing the job is extremely difficult due to the lack of direction currently being provided.

The fourth research question asked what percentage of Class 1 Hazardous Material Sites have been pre-planned and are available to COs during an emergency. Although hazardous material sites are cited in NFPA 1620, Presidential Directive 7, The Disaster Mitigation Act of 2000, The Nevada's Division of Emergency Management's own Critical Infrastructure Protection Plan (CIPP) and The State of Nevada's Division of Emergency Management – Homeland Security division, the CCFD currently does not have one pre-plan that is available to a company officer or Battalion Chief responding to an incident at one of the fifty plus Class 1 Hazardous Material Sites located in its jurisdiction.

In the fall of 2007, at the same time the first high-rise pre-plan program was starting, hazardous material inspectors began pre-planning hazardous material sites. The primary difference between the two programs was how the information was being catalogued. The hazardous material information was being entered into a software program called ArcReader and the high-rise information was being built into PDF format. ArcReader allowed for more sophisticated layering of information, but was unreadable on the hardware currently being used in all CCFD apparatus. The high-rise PDF's could be downloaded to the hardware the same day they were completed and available for all to view immediately.

In the eight years that have passed since the beginning of the hazardous material pre-planning, the same problem exists. Somewhere in the ArcReader software is valuable information that could save firefighter and civilian lives, but it is inaccessible to suppression personnel.

The fifth research question asked what percentage of high-rises on the Las Vegas Strip has a complete pre-plan. The actual percentage of "complete" pre-plans depends upon the interpretation of what "complete" means. NFPA 1620 (2010) section A.4.4 states a successful strategy for developing pre-incident plans is to take incremental steps during the design process. Using this strategy plans are issued as information is gathered and subsequent revisions occur to enhance the plans as more information becomes available.

Recommendations

The research shows that the current method used to select properties to pre-plan is not producing pre-plans of the County's critical infrastructure. The following recommendations are based on the findings of the literature review, results of Survey Monkey survey and qualitative interviews conducted.

To remove the challenge of organizational members using terms synonymously, it is recommended that the CCFD create a definition of glossary terms. Defining the terms currently being used interchangeably would clear much of the confusion and misunderstanding of what individuals are referring to. It is recommended the following terms be defined by the CCFD for its members:

1. business inspection
2. pre-plan
3. target hazard
4. CI/KR sites

In addition to defining the terms, it is recommended that the CCFD define who is responsible for what aspects of the program.

The research identified a prioritization matrix that can assist the organization in establishing what programs should continue, be suspended or be terminated completely. In his article, *How to develop a systematic approach to prioritizing all projects*, Michael Stanleigh (2010) suggested a six-step process to follow:

1. Develop an inventory of all projects in your organization.
2. Make sure each project has an approved scope statement and detailed project plan.

3. Identify and record the overall goal, strategic alignment and key deliverables for each project.
4. Establish criteria for determining the impact you expect of each project.
5. Rank each project's priority level.
6. Get senior management approval on the final ranking of projects.

If the pre-plan program ranks as a high priority activity that the department chooses to continue, it is recommended that the department evaluate if it should be used as a performance measure. Specifically addressing the performance measure tag applied by the Senior Deputy Chief of the CCFD, the project manager recommended the number of pre-plans required should make sense based on the workload crews are operating under in the organization (personal communication, project manager, 9-10-2014).

It is also recommended the fire department work with other agencies to remove the duplication of effort. Silver Shield appears to be producing plans of the States critical infrastructure and is willing to share its information with local government entities.

Based upon the survey results and the qualitative interview process, this researcher recommends the CCFD design its own prioritization matrix to help manage projects and project requests. Gosenheimer (2012) provides five steps for companies to follow when they are creating their own matrix:

1. Determine your criteria and rating scale
2. Establish criteria weight
3. Create the matrix
4. Work in teams to score projects
5. Discuss results and prioritize your list

Gosenheimer (2012) provides two samples which can be found in Appendix L and M.

It is recommended that the process be as transparent as possible to all members of the CCFD. The recommendations listed will help the CCFD prioritize and justify its programs as they move forward as an organization.

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Appendix A

SECTION 2	
NO. 3-2-	
SOP 10.1.1	
<u>STANDARD OPERATING PROCEDURE</u>	
SUBJECT: ANNUAL IN-SERVICE BUSINESS INSPECTIONS	
DATE: DECEMBER 18, 1998	
The following procedure shall be followed by all shift personnel conducting in-service inspections:	
I.	<u>STATION AREA MAP & WRITTEN EXPLANATION</u>
A.	Personnel are to conduct inspections in their assigned areas per the attached map and written explanation.
B.	All business and commercial properties are to be inspected annually by shift personnel (businesses exempt from in-service inspections are noted on page 11).
C.	When a station completes assigned inspections (or portion thereof responsible for) a memo indicating same is to be sent to the Fire Prevention Bureau and a copy to the appropriate Battalion Chief.
II.	<u>CLARK COUNTY FIRE DEPARTMENT INSPECTION RECORDS</u>
A.	FPB-63 forms (two pages) are to be used for each place of business. The second page will only be used when addressing specific occupancies; R Occupancies (apartments, motels, etc.), Service Stations/Convenience Stores and Special Occupancies (woodworking, automotive repair, etc.) NOTE: Portions of the second page will not be used for in-service inspections, but can be referred to the FPB in accordance with the following item numbers on the form: 31,32,33,40,44,45,47 and 49.
B.	Pink copy is to be left with the occupant and the white and yellow copies are to be forwarded to the Fire Prevention Bureau.
III.	<u>INSPECTION PROCEDURES</u>
Shift personnel are to inform the person in charge of the premise of the following:	

1. Name, rank, Clark County Fire Department and Suppression Personnel from Station _____.
2. Reason
 - a. In-service inspection to familiarize shift personnel with premise.
 - b. Inspection of premise for common fire code violations, resulting in a safer property for the management and occupants.
3. Fire Prevention Bureau personnel have technical responsibilities, whereas you are there to note common basic discrepancies.

IV. COMMON VIOLATIONS

The following are basic items to look for during inspections. These are just a few of the common discrepancies found during inspections, creating potential hazards to life and property. **Item numbers below are in accordance with Form FPB-63.**

A. OUTSIDE GROUNDS

1. Fire Hydrants and Fire Department Connections
 - a. Is there clear access?
 - b. Free of obstructions?
 - c. Are identifying signs needed?
2. Premise Identification
 - a. Is there an adequate address on building?
 - b. Are suite numbers identified?
 - c. Does the complex need a directory?

B. GENERAL MAINTENANCE/ELECTRICAL

3. Holes In Walls And Ceilings - Do walls and ceilings need repair to prevent rapid penetration of smoke or fire through these areas?
4. Fire Extinguishers - Is a minimum 2A-10:BC rated fire extinguisher provided? The 2A-10:BC rating is for ordinary hazard and is the most common type required.
5. Is the fire extinguisher mounted on a wall where it is visible, accessible and top is not higher than five feet from floor?

6. Does the fire extinguisher have the required Nevada State Fire Marshal tag? If so, has the extinguisher been serviced within the last twelve months? If the extinguisher has not been serviced within the last twelve months or has any of the following discrepancies: gauge shows discharged or overcharged, physical damage, seal is broken, tag is not punched properly - the extinguisher needs to be serviced immediately.
7. Compressed Gas Cylinders - Are all compressed gas cylinders (in use or in storage) properly secured to prevent falling or being knocked over?
8. Storage Heights - Is storage too high?
 - a. Fire Sprinkled Buildings - A clearance of 18 inches must be maintained from top of storage to bottom of sprinkler head deflector on ceiling.
 - b. Non-sprinkled Buildings - A clearance of 24 inches must be maintained from top of storage to ceiling.
9. Storage of Combustibles and Flammable Liquids - Is storage in an approved location? It cannot be located too close to heat sources or placed in areas not approved for storage such as; boiler, mechanical and electrical rooms; under stairways or in attics.
10. Is trash being removed at frequent intervals so it won't over accumulate? Is trash being disposed of properly in approved containers, stacked neatly and bound with rope or twine when needed?
11. Electrical - Are all electrical junction boxes and appliances properly covered (outlets, switches, panels, etc.) If so, are covers damaged?
12. Are use of electrical extension cords and/or multiple adapters of the approved type?
 - a. Is the extension cord used for one portable appliance only?
 - b. Is the extension cord the same ampacity or better of the portable appliance being used?
 - c. Are excessive use of extension cords being used where permanent wiring should be installed?
 - d. Are extension cords in good physical condition, free of damage (splices, deterioration, etc.)?

- e. Are extension cords grounded when servicing grounded portable appliances?
 - f. Are extension cords affixed to structures, extend through ceilings, walls, floors, under doors or floor coverings; or can be subject to weather or physical damage?
 - g. Are multiple plug adapters of the approved type with U.L. approved listing and equipped with built-in circuit breakers?
13. Is there a minimum clear and unobstructed 30-inch minimum access width to electrical switchboards and panels?

C. EXITS/CORRIDORS/STAIRWAYS

14. Exit Door Hardware
- a. Can exit doors be opened easily?
 - b. Is panic hardware impaired?
 - c. Are self-closing devices working properly?
15. Exits, Exit Aisles, Corridors and Stairways
- a. Are exit doors, aisles, corridors and stairways free of obstructions (storage, boxes, chairs, tables, locked, chained, etc.)
 - b. Questions regarding actual aisle widths should be referred to FPB.
16. Signs stating "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS" - are designated by the FPB and CCBD, therefore any questions should be referred to the FPB concerning these signs.
17. Illuminated EXIT Signs - Are bulbs in signs burned out?

D. FIRE PROTECTION EQUIPMENT

18. Hood and Duct Automatic Fire Extinguishing Systems (kitchens and spray booths) - Does the system have a Nevada State Fire Marshal's tag indicating the system has been serviced within the last six months? These systems require servicing every six months. Tags are typically located on the sprinkler riser and inside the control panel on alarm systems.
19. Hood, Duct and Grease Filters Over Appliances - Is there a build-up of

grease over the hood, duct and grease filters? These areas need to be cleaned as frequently as needed to prevent hazard.

20. **Fusible Links** - Are located in the hood behind the filters, normally in the plenum and at the base of the duct. These links are rated at a designed temperature when melted down due to a fire from the cooking appliances - activating the hood and duct fire suppression system. These links need to be changed at least once a year and should not have an accumulation of grease on them. Should you encounter any problems in this areas, contact the FPB.
21. **Manual Pull Station** - This device is located on a wall normally in the path of egress and allows manual activation of fire suppression system. Should you encounter any problems with this device, contact the FPB.
22. **Fire Sprinkler/Alarm System Coverage** - These systems are required by building design, occupancy type, etc. Therefore should you encounter possible problems or have specific questions concerning these systems, contact FPB.
23. **Required Annual Inspections of Fire Alarm and Sprinkler Systems** - Each system is required to have an annual inspection by a company licensed in this state. The system should have a Nevada State Fire Marshal's tag indicating date and type of service
24. **Maintenance/Cleaning Agreement** - Each type of fire protection system is required to have maintenance agreements. Hood and duct systems require maintenance and cleaning agreements. This requirement is enforced by the FPB. Should you have questions, contact the FPB.
25. **Sprinkler Systems Spare Head Cabinet** - Owners of fire sprinkler systems are required to maintain a stock of spare heads of at least six, on the premises corresponding to the type and temperatures in that system. This allows for any damaged or operated heads to be replaced immediately. A spare sprinkler wrench is to be maintained in the cabinet with the heads. Should you have any questions, contact the FPB.
26. **Objects and Obstructions to Sprinkler System** - Are there any obstructions to sprinkler heads (materials attached to heads or piping)? These systems must be maintained free of obstructions at all time in order to function properly.
27. **Sprinkler Heads** - Any sprinkler head that has been painted, damaged or corroded must be replaced and cannot be cleaned.
28. **Supervision of Fire Sprinkler/Alarm Systems** - These systems are required to be electronically supervised for activation. Should you have any questions,

contact the FPB.

E. A AND R OCCUPANCIES

29. Excess Amounts of Flammable Liquids in Residential Occupancies (motels, apartments, etc.)
 - a. Are there more than 10 gallons of flammable liquids stored inside building?
 - b. Is container(s) stored in approved location?
 - c. Are the flammable liquids being stored in approved containers with proper labeling?
30. Smoke Detectors
 - a. Is there at least one smoke detector installed adjacent to bedrooms?
 - b. Is the smoke detector operable?
- 31-32. These items pertain to assembly occupancies. If you have any questions, please contact the FPB.
33. Use of Non-Approved Candles and/or Open Flame Devices - Contact FPB if you have any questions in this area.

F. SERVICE STATIONS/CONVENIENCE STORES

34. "Emergency Pump Shut-Off Switch" sign - Is there a clearly labeled manually operated pump master switch? Switch should be located within 75 feet of, but not nearer than 15 feet to, any pump. Where such master switch is not visible from all pumps, the location thereof must be indicated by appropriate signs. NOTE: Some new stations have switches on each pump one in the cashier's area (signs indicate such).
35. Voice And Visual Communication Between Attendant And Dispensers - Can the attendant supervise, control and observe (visual and voice contact) all gasoline dispensing, be able to control sources of ignition and be able to immediately handle accidental spills and fire extinguishers if needed. NOTE: With full service gas stations where attendant dispenses all the gas, this requirement does not apply.
36. Six Inch Curb or Protective Posts - Do the dispensing islands have at least a 6-inch curb or protective posts?

37. 2A-20:BC Fire Extinguisher - Is there at least one minimum 2A-20:BC rated fire extinguisher within 75 feet travel distance to dispensers.
38. This item pertains to underground fuel lines that feed dispensers. This area should be referred to FPB.
39. Damaged/Missing Nozzles, Hoses And Retractor Cables
 - a. Does all equipment on dispenser look in good condition free of damage?
 - b. Do nozzles leak without depressing handle?
 - c. Do retractor cables operate properly?
 - d. Are hoses in good condition?
40. The FPB 46,47 and 48 forms are issued through FPB. Contact FPB if you have any questions.
41. "No Smoking - Stop Engine" Signs - Are there signs clearly posted and visible from each pump stating "No Smoking - Stop Engine".
- Additional Service Station Safety -
 - a. Gasoline cannot be used for washing parts or removing grease or dirt unless used in approved closed machine.
 43. b. Oily rags are to be in a metal or metal-lined container with a tight-fitting lid, and the container is to be kept away from combustible construction and windows.
 - c. Gasoline cannot be dispensed by gravity from tanks, drums, barrels, or similar containers.
 - d. Vents must terminate not less than 8 feet above the fill pipe opening and not less than 12 feet above the adjacent ground level. Vent pipe outlets are to be so located that vapors will not enter building openings or be trapped under eaves or other obstructions.

G. PERMANENT ABOVEGROUND FLAMMABLE/COMBUSTIBLE LIQUID STORAGE

1. Permanent Aboveground Flammable/Combustible Liquid Storage Tanks

(excluding large tank farms)

- a. Permit - A permit or a final inspection report must be kept on premises.
 - b. The tank must be an approved 2-hour fire rated secondary containment tank.
 - c. Shut-Off - An emergency shut-off switch shall be clearly located within 75' of the tank with signage.
 - d. Vents - All aboveground tanks are to have normal venting plus emergency relief venting.
 - e. Fire Extinguisher - A minimum rated 2A-20:BC fire extinguisher shall be clearly located within 75' of the tank with signage.
 - f. Signage - The tank shall clearly indicate the contents and no smoking.
2. Temporary Aboveground Flammable/Combustible Liquid Storage Tanks (excluding large tank farms)
- a. Permit - A permit must be kept on site and the maximum time given is six months.
 - b. Tanks may be single-walled but must be in a "lined" diked area capable of holding 110% of the tank contents.
 - c. Gravity feeding is not allowed.
 - d. Fire Extinguisher - A minimum rated 2A-20:BC fire extinguisher must be clearly located within 75'.
 - e. Signage - Tanks must clearly indicate contents and no smoking.

H. SPECIAL OCCUPANCIES

All items in this section 42-49 are for special hazard occupancies, which should be forwarded to FPB, should you have any concerns. **NOTE:** Item #43 is referenced in Section F "SERVICE STATIONS/CONVENIENCE STORES". Should you encounter special hazard occupancies, repair garages, woodworking shops, spray paint booths, welding shops, etc.

Check for:

1. Good housekeeping practices

2. Proper storage of flammables and combustibles
3. Exiting maintained clear
4. Using unsafe practices
Example - Welding without a fire extinguisher and a separation from adjacent combustibles. (See Section I.3)

I. NEW CONSTRUCTION/MAJOR REMODELING

Check for:

1. Build-up of trash, debris, etc.
2. Illegal burning.
3. Welding/cutting operations (must have a minimum 2A:10:BC rated fire extinguisher, separation from adjacent combustibles and a fire watch when welding and cutting is performed above or within 10 feet of combustible construction or materials, the fire watch must also redirect foot traffic away from that area. Fire watch is required to be maintained 30 minutes after completion of welding or cutting.
4. Fire hydrant(s) installed free of damage.

V. OCCUPANCIES THAT DO NOT REQUIRE COMPANY INSPECTIONS

Examples of occupancies where Suppression does not conduct in-service inspections are as follows (the Fire Prevention Bureau has this responsibility):

- A. Buildings four or more stories in height.
- B. Large hotel/casino complexes (with or without high-rises).
- C. Movie theaters.
- D. Churches.
- E. Flammable liquid tank farms.
- F. Nevada state, public, and private schools.
- G. Hospitals.
- H. Child care, foster homes, convalescent homes.

- I. Places of public assembly over 5,000 sq. ft., i.e., Las Vegas Convention Center, Thomas & Mack, Silver Bowl, etc.

NOTE: Large retail stores like Walmart, Targets, Sam's Club are considered regular B2 (Business) occupancies and will be required to be inspected by Suppression.

Appendix B

	STANDARD OPERATING PROCEDURES Annual In-Service Business Inspections	301.1 Revised: 04/06/06 Superseded: 12/18/98 Previously: 10.1.1 Page 1 of 11
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PURPOSE

The purpose of this procedure is to provide a guideline for conducting in-service business inspections.

SCOPE

This procedure applies to all shift personnel conducting in-service inspections.

RESPONSIBILITY

It is the responsibility of all shift personnel conducting in-service inspections to follow this procedure.

PROCEDURES

None

SPECIFIC PROCEDURESStation Area Map and Written Explanation

- A. Personnel are to conduct inspections in their assigned areas per.
- B. All business and commercial properties are to be inspected annually by shift personnel (businesses exempt from in-service inspections are noted on page 11).
- C. When a station completes assigned in-service business inspections for that year, the Captain shall document this on an e-mail and forward to the FPB and the appropriate Battalion Chief.

Clark County Fire Department Inspection Records

- A. FPB-63, 2004 forms (two pages, see Attachment)
 1. To be used for each place of business
 2. The second page will only be used when addressing specific occupancies
 - a. R Occupancies (apartments, motels, etc.)
 - b. Service Stations/Convenience Stores
 - c. Special Occupancies (woodworking, automotive repair, etc.)

NOTE: Portions of the second page will not be used for in-service inspections, but can be referred to the FPB in accordance with the following item numbers on the form: 31, 32, 33, 40, 44, 45, 47, and 49.

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- B. The yellow copy is to be left with the occupant, and the white and pink copies are to be forwarded to the FPB.

Inspection Procedures

- A. Request entry to conduct the inspection and to have an authorized escort during the inspection. (should not go off on their own due to liability reasons)
- B. Shift personnel are to inform the person in charge of the premise who you are and what reasons your present
 1. Name, rank, CCFD, Station_____.
 2. In-service inspection to familiarize shift personnel with premise
 3. Inspection of premise for common fire code violations, resulting in a safer property for the management and occupants
- C. FPB personnel have technical responsibilities, whereas you are there to note common basic discrepancies

NOTE: If you have questions or concerns, contact the Fire Prevention Bureau Help on the computer.

Common Violations (follow FPB 63B step by step).

The following are basic items to look for during inspections. These are just a few of the common discrepancies found during inspections creating potential hazards to life and property. (Item numbers below are in accordance with Form FPB-63.)

- A. Outside Grounds
 1. Fire Hydrants and Fire Department Connections
 - a. Is there clear access?
 - b. Free of obstructions?
 - c. Are identifying signs needed?
 2. Premise Identification.
 - a. Is there an adequate address on building?
 - b. Are suite numbers identified?
 - c. Does the complex need a directory?
- B. General Maintenance/Electrical
 1. Holes in Walls and Ceilings: Do walls and ceilings need repair to prevent rapid penetration of smoke or fire through these areas?
 2. Fire Extinguishers

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- a. Is a minimum 2A-10:BC rated fire extinguisher provided? The 2A-10:BC rating is for ordinary hazard and is the most common type required.
- b. Is the fire extinguisher mounted on a wall where it is visible, accessible and top is not higher than five feet from floor?
- c. Does the fire extinguisher have the required Nevada State Fire Marshal tag?
 - i. If so, has the extinguisher been serviced within the last twelve months?
 - ii. If the extinguisher has not been serviced within the last twelve months or has any of the following discrepancies: gauge shows discharged or overcharged, physical damage, seal is broken, tag is not punched properly, the extinguisher needs to be serviced immediately.
- d. Compressed Gas Cylinders: Are all compressed gas cylinders (in use or in storage) properly secured to prevent falling or being knocked over?
- e. Storage Height: Is storage too high?
 - i. Fire Sprinkled Buildings. A clearance of 18 inches must be maintained from top of storage to bottom of sprinkler head deflector on ceiling.
 - ii. Non-sprinkled Buildings. A clearance of 24 inches must be maintained from top of storage to ceiling.
- f. Storage of Combustibles and Flammable Liquids: Is storage in an approved location? It cannot be located too close to heat sources or placed in areas not approved for storage; such as, boiler, mechanical and electrical rooms; under stairways, or in attics.
- g. Trash
 - i. Is trash being removed at frequent intervals so it would not over accumulate?
 - ii. Is trash being disposed of properly in approved containers, stacked neatly and bound with rope or twine when needed?
- h. Electrical: Are all electrical junction boxes and appliances properly covered (outlets, switches, panels, etc.). If so, are covers damaged?
- i. Are use of electrical extension cords and/or multiple adapters of the approved type?
 - i. Is the extension cord used for one portable appliance only?
 - ii. Is the extension cord the same AMP or better of the portable appliance being used?
 - iii. Are excessive use of extension cords being used where permanent wiring should be installed?
 - iv. Are extension cords in good physical condition, free of damage (splices, deterioration, etc.)?
 - v. Are extension cords grounded when servicing grounded portable appliances?

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- vi. Are extension cords affixed to structures, extended through ceilings, walls, floors, under doors or floor coverings; or can be subject to weather or physical damage?
 - vii. Are multiple-plug adapters of the approved type with U.L. approved listing and equipped with built-in circuit breakers?
 - j. Is there a minimum clear and unobstructed 30-inch minimum access width to electrical switchboards and panels?
- C. Exits/Corridors/Stairways
 - 1. Exit Door Hardware
 - a. Can exit doors be opened easily?
 - b. Is panic hardware impaired?
 - c. Are self-closing devices working properly?
 - 2. Exits, Exit Aisles, Corridors, and Stairways
 - a. Are exit doors, aisles, corridors, and stairways free of obstructions (storage, boxes, chairs, tables, locked, chained, etc.)
 - b. Questions regarding actual aisle widths should be referred to FPB.
 - 3. Signs stating "this door to remain unlocked during business hours" are designated by the FPB and CCFD; therefore, any questions should be referred to the FPB concerning these signs.
 - 4. Illuminated "Exit" Signs: Are bulbs in signs burned out?
- D. Fire Protection Equipment
 - 1. Hood and Duct Automatic Fire Extinguishing Systems (kitchens and spray booths). Does the system have a Nevada State Fire Marshal's tag indicating the system has been serviced within the last six months? These systems require servicing every six months. Tags are typically located on the sprinkler riser and inside the control panel on alarm systems.
 - 2. Hood, Duct and Grease Filters over Appliances: Is there a build-up of grease over the hood, duct, and grease filters? These areas need to be cleaned frequently to prevent hazard.
 - 3. Fusible Links: Are located in the hood behind the filters, normally in the plenum and at the base of the duct. These links are rated at a designed temperature when melted down due to a fire from the cooking appliances - activating the hood and duct fire suppression system. These links need to be changed at least once a year and should not have an accumulation of grease on them. Should you encounter any problems in this area, contact the FPB.
 - 4. Manual Pull Station: This device is located on a wall normally in the path of egress and allows manual activation of fire suppression system. Should you encounter any problems with this device, contact the FPB.

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5. Fire Sprinkler/Alarm System Coverage: These systems are required by building design, occupancy type, etc.; therefore, should you encounter possible problems or have specific questions concerning these systems, contact FPB.
6. Required Annual Inspections of Fire Alarm and Sprinkler Systems: Each system is required to have an annual inspection by a company licensed in this state. The system should have a Nevada State Fire Marshal's tag indicating date and type of service
7. Maintenance/Cleaning Agreement: Each type of fire protection system is required to have maintenance agreements. Hood and duct systems require maintenance and cleaning agreements. This requirement is enforced by the FPB. Should you have questions, contact the FPB.
8. Sprinkler Systems Spare Head Cabinet: Owners of fire sprinkler systems are required to maintain a stock of spare heads (at least six) on the premises corresponding to the type and temperatures of that system. This allows for any damaged or operated heads to be replaced immediately. A spare sprinkler wrench is to be maintained in the cabinet with the heads. Should you have any questions, contact the FPB.
9. Objects and Obstructions to Sprinkler System: Are there any obstructions to sprinkler heads (materials attached to heads or piping)? These systems must be maintained free of obstructions at all time in order to function properly.
10. Sprinkler Heads. Any sprinkler head that has been painted, damaged, or corroded must be replaced and cannot be cleaned.
11. Supervision of Fire Sprinkler/Alarm Systems: These systems are required to be electronically supervised for activation. Should you have any questions, contact the FPB.

ATTACHMENTS

None

REFERENCES

None

	STANDARD OPERATING PROCEDURES Annual In-Service Business Inspections	301.1 Revised: 04/06/06 Supersedes: 12/10/96 Previously: 10.1.1 Page 6 of 11
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ANNUAL IN-SERVICE BUSINESS INSPECTIONS

STATION #12

- N: Sahara between west county line and Paradise/Bermuda
- S: Flamingo between freeway and Paradise
- E: Paradise between Sahara and Flamingo
- W: Freeway between Flamingo and north county line

STATION #13

McCarran International Airport

STATION #14

- N: Sahara between Eastern and Boulder Highway; Vegas Valley Drive between Boulder Highway and east county line
- S: Flamingo between Eastern and east county line
- E: East county line between Flamingo and Vegas Valley Drive
- W: Eastern between Sahara and Flamingo. Also, both sides of Boulder Highway between Charleston and Nellis.

STATION #15

- N: North county line between freeway and Decatur
- S: Spring Mountain Road (both sides) between freeway and Decatur
- E: Freeway between north county line and Spring Mountain Road
- W: Decatur between north county line and Spring Mountain Road

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STATION #16

N: Owens between Nellis and east county line; Charleston between Eastern and Nellis
S: Vegas Valley Drive between Boulder Highway and east county line
E: East county line between Vegas Valley Drive and Owens
W: Boulder Highway between Vegas Valley Drive and Charleston; Nellis between Charleston and Owens

SMALL AREA OF COUNTY LOCATED AS FOLLOWS:

N: Sunrise Avenue between 26th and 28th; Valley Street between 25th and 26th
S: Charleston between 25th and 28th
E: 28th between Charleston and Sunrise Avenue
W: 25th between Charleston and Valley Street; 26th between Valley Street and Sunrise Avenue

STATION #17

N: Flamingo from Eastern to Boulder Highway and Nellis to east county line
S: South county line between Pecos and east county line
E: East county line between Flamingo and south county line
W: Pecos between Flamingo and south county line

STATION #18

N: Flamingo between freeway and Paradise
S: South county line between freeway and Bermuda
E: Paradise between Flamingo and McCarran Airport; Bermuda between McCarran Airport and south county line
W: Freeway between Flamingo and south county line
N: Sahara between Paradise and Eastern
S: Flamingo between Paradise and Eastern

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E: Eastern between Flamingo and Sahara

W: Paradise between Flamingo and Sahara

STATION #19

N: Flamingo between Paradise and Pecos

S: County line between Paradise and Eastern

E: Pecos between Flamingo and south county line

W: Paradise between Patrick and Flamingo; Bermuda between McCarran Airport and south county line

STATION #20

N: North county line between Pecos and east county line

S: Owens between Pecos and east county line

E: East county line between north county line and Owens

W: Pecos between Owens and north county line

STATION #21

N: Spring Mountain Road between freeway and Decatur

S: South county line between freeway and Decatur

E: Freeway between Spring Mountain Road and south county line

W: Decatur between Spring Mountain Road and south county line

STATION #22

N: North county line between west county line and Decatur

S: South county line between west county line and Decatur

E: Decatur (both sides) between north county line and south county line

W: West county line between north county line and south county line

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STATION #23

N: Craig Road

S: Lake Mead

E: Nellis Blvd.

W: Pecos

STATION #24

N: Warm Springs Road

S: Lake Mead Drive

E: Paradise Road

W: Rainbow Blvd.

STATION #25

N: Flamingo Road

S: Sunset

E: Lamb

W: Eastern

STATION #87

N: Lake Mead Drive

S: South County Line

E:

W:

Appendix C

Survey Monkey Questions

1. Please rank your daily activities in order of importance to YOU.
2. Please rank your daily activities in order of importance to your
ADMINISTRATION.
3. What criteria do you use to select buildings to pre-plan?
4. Are target hazards identified in your first-in area?
5. How frequently do you access pre-plans on your mobile computer terminal while
enroute to the emergency?
6. What two buttons do you need to press in order to access pre-plans on your
mobile computer terminal?
7. How much of your monthly training hours are devoted to pre-planning?
8. What percentage of the pre-plans you have produced would be considered critical
infrastructure sites with Clark County?
9. Have you been taught by the CCFD how to identify critical infrastructure?
10. Have you been given direction by the CCFD on prioritizing pre-plan sites?

Appendix D



Clark County Pre-Plans in CAD and have been pushed to Mobile Computers (sorted by Street Name)

Name	Address	PrePlan	Description
MI MCVANE ROCK QUARRY	035°45'48 & 115°12'30	CC55222101.pdf	Mine
BU CASHMAN PHOTO ENTERPRISES	3660 CINDER LN	CC27235501.pdf	Business
MI LV PAVING APEX LANDFILL SITE	850 ACCESS REPUBLIC SERV	CC2984243.pdf	Mine
BU EVERGREEN RECYCLING	5491 ACCURATE DR	CC21317501.pdf	Business
AP PARK AVENUE CONDOS (67)	87 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDO CLUBHOUSE (85)	85 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (15)	15 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (19)	19 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (23)	23 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (27)	27 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (31)	31 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (35)	35 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (39)	39 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (43)	43 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (47)	47 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (51)	51 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (59)	59 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (63)	63 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (71)	71 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (75)	75 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (79)	79 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (83)	83 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (87)	87 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (91)	91 E AGATE AVE	CC35243201.pdf	Apartment
AP PARK AVENUE CONDOS (55)	55 E AGATE AVE	CC35243201.pdf	Apartment
BU LAS VEGAS TRUCKING	3355 ALDEBARAN AVE	CC27231402.pdf	Business
ROCK SECURITY	3375 ALDEBARAN AVE	CC27231401.pdf	Business
BU MACHINE GUNS VEGAS	3501 ALDEBARAN AVE	CC27232401.pdf	Business
BU SODA MAN & COFFEE GIRL	4322 E ALEXANDER RD	CC19291101.pdf	Business
BU ROB THOMAS DAMASCUS	4308 E ALEXANDER RD	CC19291102.pdf	Business
AP HISPERIAN FALLS	3955 ALGONQUIN DR	CC27266301.pdf	Apartment
BU AL PHILLIPS THE CLEANERS	3250 W ALI BABA LN	CC29234301.pdf	Business
BU HACIENDA / POLARIS BUSINESS CENTER	3325 W ALI BABA LN	CC29234302.pdf	Business

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Appendix D (cont)

<u>Name</u>	<u>Address</u>	<u>PrePlan</u>	<u>Description</u>
BU PROCYON INDUSTRIAL PARK 2	3651 W ALI BABA LN	CC29234101.pdf	Business
HRC C2 LOFTS (11435 ALLERTON PARK)	11435 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11436 ALLERTON PARK)	11436 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11437 ALLERTON PARK)	11437 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11438 ALLERTON PARK)	11438 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11439 ALLERTON PARK)	11439 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11440 ALLERTON PARK)	11440 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
HRC C2 LOFTS (11441 ALLERTON PARK)	11441 ALLERTON PARK DR	CC25131401.pdf	High Rise Condominium
SC CHAPPARRAL HS	3850 ANNIE OAKLEY DR	CC27287701.pdf	School
BU GREEN VALLEY TURF EQUIP	6145 ANNIE OAKLEY DR	CC31286701.pdf	Business
BU AMC FABRICATION	6185 ANNIE OAKLEY DR	CC31286702.pdf	Business
BU EXPRESS SCRIPTS	6225 ANNIE OAKLEY DR	CC31286704.pdf	Business
BU MULTI BUSINESS COMPLEX (6210 ANNIE OAKLEY)	6210 ANNIE OAKLEY DR	CC31286703.pdf	Business
BU PDS GAMING	6280 ANNIE OAKLEY DR	CC31287701.pdf	Business
BU PET NET SOLUTIONS	6320 ANNIE OAKLEY DR	CC31288701.pdf	Business
BU UPS STORE ARBY/PLACID	335 E ARBY AVE	CC32247801.pdf	Business
BU LESLIES COMMERCIAL SERVICE CNTR	365 E ARBY AVE	CC32247901.pdf	Business
BU SOUTHERN NEVADA WELDING	4115 ARCTIC SPRING AVE	CC18298101.pdf	Business
BU VACANT (4125 ARCTIC SPRING)	4125 ARCTIC SPRING AVE	CC18298102.pdf	Business
AP PACIFIC LEGENDS CONDOS	1300 S ARLINGTON ST	CC25292901.pdf	Apartment
BU MULTIPLE BUSINESS COMPLEX (MONTESSOURI / TENAY)	7290 ARROYO CROSSING PKY	CC32185601.pdf	Business
BU MULTIPLE BUSINESS COMPLEX (7305 ARROYO CROSSIN	7305 ARROYO CROSSING PKY	CC32185602.pdf	Business
BU MULTIPLE BUSINESS COMPLEX (7310 ARROYO CROSSIN	7310 ARROYO CROSSING PKY	CC32185603.pdf	Business
MH CAPRI	3150 ARVILLE ST	CC26228501.pdf	Mobile Home Park
AP SHADOW RIDGE	3200 ARVILLE ST	CC26228601.pdf	Apartment
AP EL PUEBLO DE LAS BRISAS	3355 ARVILLE ST	CC27221501.pdf	Apartment
BU STRIP MALL (7 ISLAND PIZZA / SOFIAS / STOR-IT)	3380 ARVILLE ST	CC27221502.pdf	Business
BU AMERICAN SHOOTERS SUPPLY	3440 ARVILLE ST	CC27222501.pdf	Business
BU SONAGI WAI WAI CAFE, SUDAO SPA	3480 ARVILLE ST	CC27222502.pdf	Business
BU TERRIBLE GAS ARVIFLAM	4070 ARVILLE ST	CC27229501.pdf	Business
BU POLE POSITION	4175 ARVILLE ST	CC28221502.pdf	Business
CCSD BUS DEPOT	4499 ARVILLE ST	CC28225501.pdf	School

Appendix E

Class 1 Hazardous Material Sites in Clark County, NV.

Provided by Deputy Fire Marshall of Clark County Fire Department Prevention Division

Big Bend Water District	1520 Thomas Edison Dr
Clark County Water Reclamation Laughlin	450 Bruce Woodbury Dr
Mohave Power Generating Plant	655 Bruce Woodbury Dr
SEM Asphalt	3901 Ponderosa Way
Olin Chlor Alkali	350 Fourth St
Saguaro Power	435 Fourth St.
Tronox	560 W. Lake Mead
Veolia Water	510 Fourth St.
Titanium Metals (Timet)	181 N. Water St.
Walter Higgins Power Plant	1275 E Primm Blvd
Sunrise Power Plant	6300 Vegas Valley Dr
Nevada Sun Peak Power Plant	6360 Vegas Valley Dr
Clark Station	5640 Stephanie St
Nevada Cogen 2 / Black Mtn	8000 E Lake Mead Blvd
Pabco Gypsum	8000 E Lake Mead Blvd
Nevada Cogen 1 / Garnet Valley	11101 N US Hwy 93
Georgia Pacific Gypsum	11401 N US Hwy 91
Harry Allen Generating Station	14601 N Las Vegas Blvd
Chuck Lenzie Generating Station	13605 Chuck Lenzie Ct
Apex Generating Station	15555 Apex Power Pkwy
Silverhawk Generating Station	15111 Apex Power Pkwy
Reid Gardner Generating Station	501 Wally Kay Way
Haycock Fuel Terminals	5049 N Sloan Ln
Pool Chlor Nevada	3590 W Dewey Dr

Splash Pool Chemicals	5445 Reflex Dr
Alfred Merrit Smith Water Treatment Facility	243 Lake Shore Dr
Las Vegas Water Pollution Control Facility	6005 Vegas Valley Dr
McCarran Tank Farm	5795 Paradise
Southwest Gas - Odorant Storage Tank, Lone Mtn	5090 N Jensen St
Southwest Gas - Odorant Storage Tank, Blue Diamond	11350 Blue Diamond Rd
Southwest Gas - Odorant Storage Tank, Primm	APN 237-06-000-001
Southwest Gas - Odorant Storage Tank, Laughlin	APN 265-00-001-015
Southwest Gas - Odorant Storage Tank, Apex	APN 103-29-000-008
LVVWD - Grand Canyon	3315 N Grand Canyon Dr
LVVWD - SNWA Pumping Plant	765 N Hollywood Blvd
LVVWD - Montessori Reservoir	7200 W Warm Springs Rd
LVVWD - Warm Springs Reservoir	5950 W Warm Springs Rd
LVVWD - Pico Reservoir	6300 W Desert Inn Rd
LVVWD - Reno Reservoir	5025 S Hualapai Way
LVVWD - Spring Mtn / Durango Reservoir	8815 Spring Mountain Rd
LVVWD - Desert Inn Reservoir	11180 W Desert Inn Rd
Helena Chemical	3650 W Dewey Dr
Pepsi Bottling Company	6000 W Sunset Rd
Goodsprings Compressor Station	14775 State Hwy 161
Chevron USA	5000 N Sloan Ln
Rebel Fuel	5054 N Sloan Ln
Pro Petroleum	4985 N Sloan Ln
River City Petroleum Inc	4870 E Cartier Ave
Certainfeed Gypsum MFG Inc	13500 Blue Diamond Rd
Aquatic Co (Lasco)	201 N Meadow Valley Rd
Clark County Water Reclamation District	5857 E Flamingo Rd

(New) Valence Technology Inc.

1889 E. Maule Ave.

(New) Republic Svcs - Apex (New- Disulfur)

13550 N. Las Vegas Blvd.

(New) Superior Pool Service

6595 Schuster Rd.

Appendix F

Senior Deputy Chief, Clark County Fire Department

Qualitative Assessment Protocol

Interview – (Conducted on 11-8-2014) The Senior Deputy Chief who initiated the performance measure tag was interviewed.

Questions:

1. Rank order of importance to you (1-6):

FF Skills- _____

Pre-plans- _____

Emergency responses- _____

Hydrant testing- _____

EMS Skills/ Training- _____

School Drills- _____

2. What criteria should be used to select buildings to pre-plan?
3. How are target hazards identified within Clark County?
4. How much of the departments monthly training hours should be devoted to pre-plans?
5. Are critical infrastructure sites identified within Clark County?
6. How many of the pre-plans that have been completed are Critical Infrastructure sites?
7. Have we instructed COs what Critical Infrastructure sites are in Clark County?
8. Have you given COs direction on what sites should be pre-planned first (prioritization)?

9. In your opinion what sites should COs pre-plan first?
10. How and why did pre-plans become a performance measure?
11. If you choose to continue to use pre-plans as a measurement, wouldn't it be more accurate to measure when they are available for CO to access?
12. Who is in charge/manages the pre-plan program?
13. Has there ever been a re-evaluation of the program to identify areas for improvement.
14. Is there anything else you would like to add regarding the pre-plan program that we have not addressed?

Appendix G

Project Manager, Clark County Fire Department

Qualitative Assessment Protocol

Interview – (Conducted on 9-10-2014) The Project Manager whom was the senior ranking officer involved with the implementation of the current pre-plan program was interviewed.

Questions:

1. What was the driving force behind the current program?
2. Is the current plan compliant with NFPA 1620?
3. How could the current program be improved to better serve the fire department and the citizens of Clark County?
4. What is the scope of the current pre-plan program?
5. How was the scope established?
6. Is there any monitoring of performance?
7. Did you consider using project management techniques to monitor performance?
8. What methodology is used to select pre-plan sites? And why?
9. Does the current pre-plan program achieve the desired results?
10. Do you feel this is the most effective use of personnel time?

Appendix H

Battalion Chief, Clark County Fire Department

Qualitative Assessment Protocol

Interview – (Conducted on 12-14-2014)

Questions:

1. What was the driving force behind the current program?
2. Is the current plan compliant with NFPA 1620?
3. How could the current program be improved to better serve the fire department and the citizens of Clark County?
4. What is the scope of the current pre-plan program?
5. How was the scope established?
6. Is there any monitoring of performance?
7. Did you consider using project management techniques to monitor performance?
8. What methodology is used to select pre-plan sites? And why?
9. Does the current pre-plan program achieve the desired results?
10. Do you feel this is the most effective use of personnel time?

Appendix I

Captain A and B, Clark County Fire Department

Qualitative Assessment Protocol

Interview – (Conducted on 12-22-2014) Two separate Captains were interviewed in an effort to provide context to the answers provided from the survey.

Questions:

1. Why do you feel there is such a difference between what is important to you as a CO and the perceived level of importance of your administration?
2. How do you select your buildings to pre-plan?
3. If the department's required training is 50% of the months total training hours, why do you think most CO spend 25% or less of their time on pre-plans?
4. Is critical infrastructure a term you are familiar with or is it something you have heard since the research?
5. Is there a target hazard book at your station? If not, how do you track target hazards?
6. Does the performance measure tag change what you pre-plan?
7. Has anyone ever asked you how three pre-plans a month effect your daily operation at the firehouse?
8. Is there anything else you would like to add regarding the pre-plan program?

Appendix J

GIS Analyst, Clark County

Qualitative Assessment Protocol

Interview – (Conducted on 12-17-2014) The GIS Analyst who has worked with CCFD suppression and prevention members was interviewed to provide background on why different formats were chosen to store data.

Questions:

1. How was the data input differently between the high-rise pre-plan program and the hazardous material inspections program?
2. Is it possible to convert all the hazardous material information to a format that can be displayed on our current MCTs?
3. Is there a better way to collect the data to make inputting the information faster/easier for GIS?
4. Is there anything else you would like to add regarding the pre-plan program (haz-mat or high-rise)?

Appendix K

December 2014 CCFD Required Monthly Training

Provided by CCFD Training Division

December 2014

[[Suppression Training Calendar](#)]

Monthly Training Sessions

The CCFD Training Division develops its training plan based upon local, state, and/or federally mandated training. We also use the Insurance Services Office's (ISO) Fire Suppression Rating Schedule as a guideline to determine how many hours per month suppression personnel should be training, and in what manner.

Suppression

(All Suppression Personnel Must Complete)

ISO allows up to four (4) hours of Physical Training (PT) a month to count toward training hours. Log the PT you do using FireRMS code, **IG_HS-09**.

SESSION 1
[Responses to F-2M calls: Bomb/Suspicious package](#)
 (Code: **BIS106**, 1 Hour)

SESSION 2
[H.V.A.C.](#)
<Link to YouTube. This is an UNLISTED link and after a month or so will be removed.>
 (Code: **HVAC**, 1 Hour)

SESSION 3
[Table Top: Chemical release with Medical](#)
Reference Videos to watch:
 First responder response to NH3: <https://www.youtube.com/watch?v=WSMOzvyZHAs>
 Example of Expansion rate and speed of a 40000lb NH3 leak: <https://www.youtube.com/watch?v=sNkdAs1e7Cw>
 Medical Response to Anhydrous Ammonia Incidents: <http://home.comcast.net/~pchristou/2004June.html>
 What could happen to your lungs if exposed to NH3: <https://www.youtube.com/watch?v=KctSyILS6Ho>
 (Code: **TT-1014**, 1 Hour)

SESSION 4
[SNFO SOP #10 - Presentation](#)
[SNFO SOP 10 - SOP](#)
 (Code: **BIS04**, 1 Hour)

SESSION 5
Single Company Drill - Ropes and Knots

Using the skill sheets below that have been developed	Hoist the following tools/equipment using the
---	---

for the nine knots that CCFD firefighters are taught, practice these knots with rope or webbing until you are proficient. - • Tie a figure-eight - • Tie a figure-eight follow-through - • Tie a figure-eight on a bight - • Tie a clove hitch - • Tie a clove hitch around an object - • Tie a handcuff knot - • Tie a grapevine knot - • Tie a butterfly knot - • Tie a water knot	knots of combination of knots practiced. - • Pike pole or Trash/rubbish hook - • Axe or Haligan - • Roof ladder - • Uncharged hoseline - • Charged hoseline - • Chainsaw
(Code: SCD-12, 2 Hours)	
SESSION 6 Pre-Planning #1. (The Pre-Planning you do is counted as training.) (Code: BIS49, 2 Hours)	
SESSION 7 Pre-Planning #2. (The Pre-Planning you do is counted as training.) (Code: BIS49, 2 Hours)	
SESSION 8 Pre-Planning #3. (The Pre-Planning you do is counted as training.) (Code: BIS49, 2 Hours)	
Company Officer Development (Captains and Acting Captains Need to Complete)	
SESSION 1 You have been assigned a topic within TargetSolutions. Please login and complete it as it covers something pretty important. Background: Beginning January 1, 2015 we will no longer be entering training records into FireRMS but instead will begin using TargetSolutions for entering training. Please note that FireRMS will still be used for everything else that you currently use it for. This is going to be something different that does not work exactly the same as FireRMS so of course there will be some bumps as you become familiar with this new way of logging training. Please take the time to review the training assigned to Company Officers. If you have any questions please give me a call. I work Tu-Fridays and my desk extension is 7760. (Code: N/A)	

Appendix L

How to Complete the Project Prioritization Matrix

For each project, write the PROJECT NAME in the top box of a yellow column, then complete the following steps:

- Evaluate the project against the first CRITERIA
- Give the project a RATING appropriate to how well the project fits that criteria
- MULTIPLY: weight x rating
- WRITE the resulting number, i.e., the weighted value, into the yellow box for that project and criteria
- Move on to the next criteria, REPEAT ALL STEPS until the project has been assigned weighted values for all criteria

Final step: ADD ALL VALUES in the yellow column for the project, and place the total in the GREEN BOX at the bottom

Appendix M

Sample Completed Project Prioritization Matrix

CRITERIA	WEIGHT	SCORING VALUES	Project A	Project B
Required Service/Product (are any of these true?) - Mandate (campus, UW-System or state) – provost/chancellor/CIO and/or legal/compliance - Impacts core/foundational service - Other services/products depend on it	5	0, 3, 6, 9 0: none are true 3: one is true 6: two are true 9: all are true	30	45
Strategic Alignment - Campus Initiatives/Strategic Priorities - Administrative Excellence - Educational Innovation	4	0, 3, 6, 9 0: aligns with none 3: aligns with one 6: aligns with two 9: aligns with all	24	24
Value to "Customer" Customers are consumers or users of the service/product and could be students, staff, faculty, UW-System, other campuses, external partners and even other services; project that are funded (MIU, SITAC, grant \$, etc.)	4	0, 3, 6, 9 0: little value to the customer(s) 3: some value 6: a lot of value to customer 9: essential/critical to customer(s)	36	12
Importance to Risk Mitigation Would the campus or customer be exposed to a risk or impact if the service or product is not offered?	3	0, 3, 6, 9 0: little risk to campus or customer if not offered 3: some risk to campus or customer if not offered 6: much risk to campus or customer if not offered 9: high risk to the campus or customer if not offered	9	27
Leverage Potential Multiplier effect: service/product can be leveraged for other users/customers on campus or within UW-System; and/or adds value for external partners	3	0, 3, 6, 9 0: little leverage potential, isolated service 3: some leverage 6: much leverage 9: service could be leveraged by many	0	18
Full Disclosure of Costs – includes implementation and maintenance costs	2	0, 3, 6, 9 0: lots of unknown or hidden costs 3: some costs are known 6: many costs are known 9: all costs, direct & indirect, are known and tabulated	12	12
Significance to Users/Customer Base	2	0, 3, 6, 9 0: low impact, low number of users 3: low impact, high number of users 6: high impact, low number of users 9: high impact, high number of users	6	18
TOTAL PROJECT SCORE			117	156