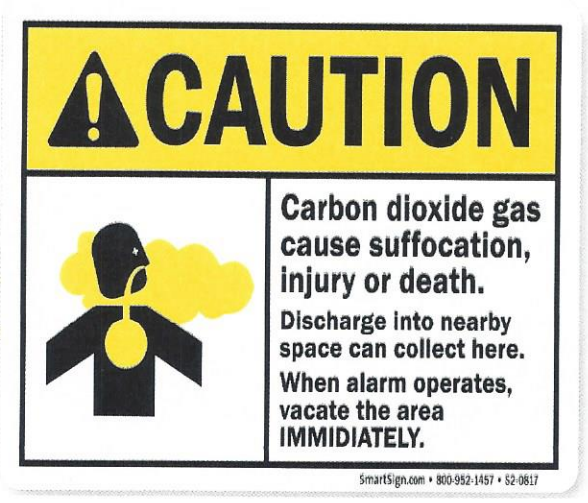
California City Fire Department
MMJ Impact Report



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California City Fire Department
MMJ Impact Report

This comprehensive review of Medical Marijuana and California City Fire Department's current and future capabilities has been done to inform city council, city management, the Marijuana industry, and the public of the impacts of Medical Marijuana and the influx of commercial building in California City as it relates to fire department service levels and standards. This report does not by any means mandate any actions; it is simply a comprehensive tool to allow those in leadership positions to fully understand the impacts of an industry on one city department. This document will assist in determining the level of acceptable risk that the city is willing to assume based upon the scientific and accepted standards presented.

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us

CCFD Station 19
20890 Hacienda Blvd.
California City, CA 93505

Introduction

As the new Fire Chief for California City Fire Department, I have had the honor of serving this community with pride and honor. My sole purpose as Fire Chief/ Director of Emergency Management/ Director of Code Enforcement, is the public safety of all who live, work, visit, and travel through this great city. It is my duty to inform and educate all stakeholders in the community of anything that may currently impact or will impact public health and safety in the future. My qualifications to serve in this capacity and make department recommendations about public safety are reflected in my attainment of a Master's Degree in Public Safety Leadership and my California state certification as a Hazardous Materials Incident Commander, Fire Prevention Officer, and Public Education Officer through the office of the State Fire Marshal.

With a limited budget for the fire department and public safety, a certain level of risk is assumed by the city and the community. It is up to the city and community to determine what level of risk is acceptable and the level of service they desire as we move forward. With the city's loss of special tax funding, the city management will need to decide how they intend to fulfill their obligation to the community to provide public safety. It is my role as Fire Chief to educate the city on standards and practices of this industry. It is my hope that this document sheds some understanding on the fire departments services and the impacts of the MMJ industry on our city.

The Fire Department is in support of all growth in this city and is in no way against the medical marijuana industry. As Fire Chief, all I can insist is that the fire department has the personnel, equipment, and training to mitigate the risks and impacts of the medical marijuana industry or any other industry that presents itself in our fine city.

-Justin Vincent, M.S.

Fire Chief/ Director of Code Enforcement/ Director of Emergency Management

California City Fire Department

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us

20890 Hacienda Blvd.
California City, CA 93505

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Kern County Fire Department
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Medical Marijuana Industry
Department of Transportation- (DOT)

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us

20890 Hacienda Blvd.
California City, CA 93505

California City & Medical Marijuana Industry
Determining Resource Needs

When it comes to determining the resources for the California City Fire Department (CCFD), common questions asked by administrators, city council and concerned citizens are, when, where, and how much. Determining the proper level of resources to deploy for a fire department involves balancing the safety concerns of citizens and the financial situation of the local government. Of the 'when, where, and how' questions "where" is the biggest question and has the most impact on other decisions. Some of the areas it can impact include: how many units are needed, how big should they be, and when should the units be deployed. All of these impact overall cost. Poorly placed fire stations, apparatus, and personnel often results in more resources being placed in the community than are needed to provide the desired level of service.

By the accepted definition of an essential service in the government sector, public safety is an "essential service". Although many other departments have very important roles and functions, they are not essential services. The California Supreme Court has determined that "essential service" jobs are those that are barred from striking. State law allows public employees to go on strike to enforce their collective bargaining demands, except if they perform jobs that are essential to public welfare. The State of California has deemed Fire and Police services as "essential services" because such a move would create a serious threat to public safety. Roles such as nurses, teachers, administrators, and accountants have the ability to strike and therefore are not an "essential service". If a city department can end its operation on Friday at 5 pm and start again on Monday at 8 am, it is not an essential service. This is in no way saying it is not an important service, but those departments are not "essential services". This definition is also mirrored by the federal government during budget or hiring freezes. "Essential services" in public safety are never attached to any such DOD or government freezes.

Deciding how many emergency response resources to deploy and where, is a science. The ultimate decision is based on a combination of risk analysis, professional judgment, and the city's willingness to accept more or less risk. Accepting more risk generally means that fewer resources are deployed. Obviously, there are many pieces to consider, but there are some good sources to draw on to help make the decisions. Some of the available sources, include the Insurance Services Office (ISO), the National Fire Protection Agency (NFPA), the Commission on Fire Accreditation International (CFAI), the Occupational Safety and Health Administration (OSHA), and comparable departments.

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us

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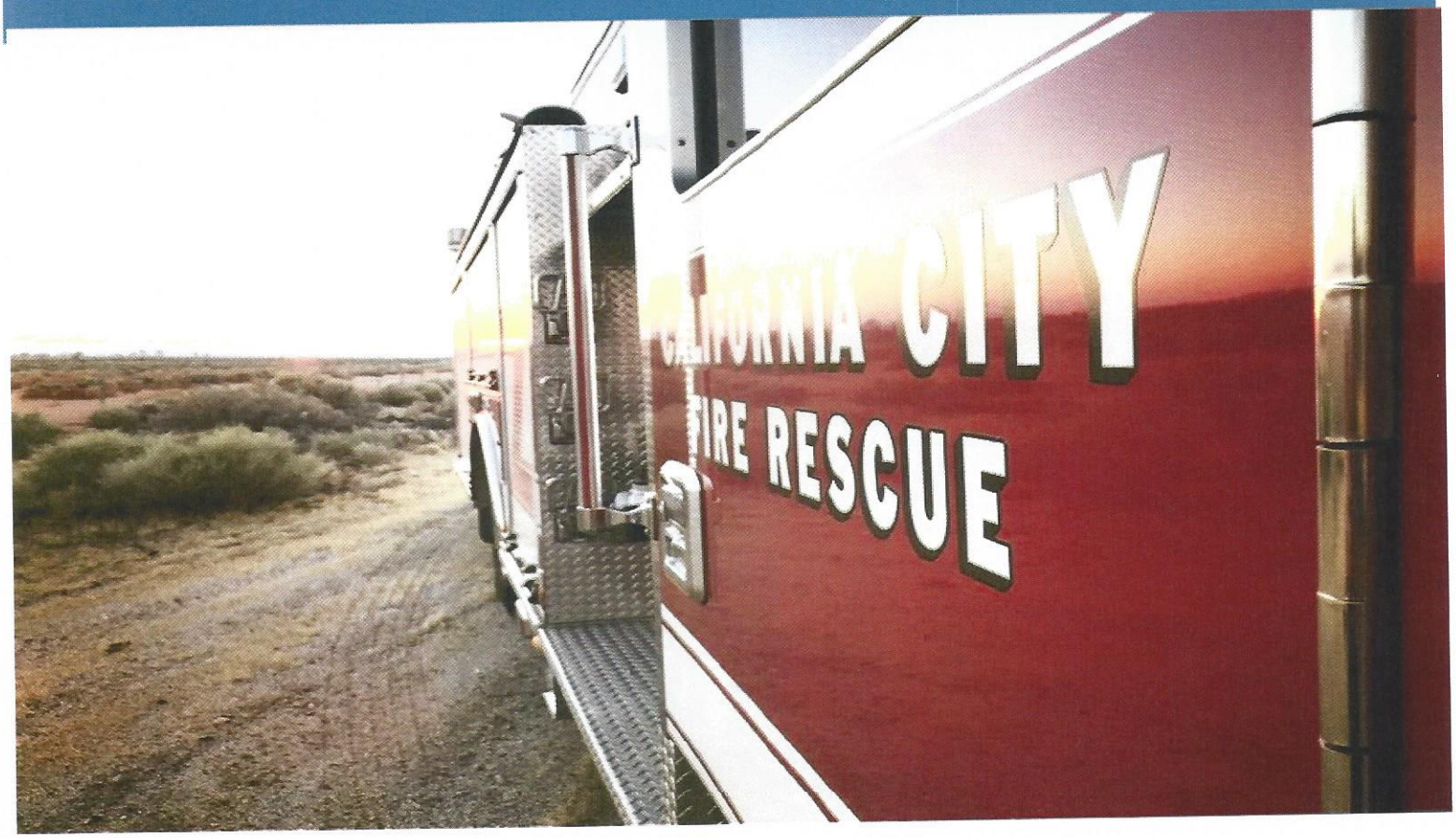
California City, CA 93505

Purpose of this Review

Outline standards to be used for answering the following questions:

- What should the CCFD minimum crew size and overall staffing level be?
- Are there opportunities for more effective and/or more efficient use of CCFD resources?
- Are CCFD stations located optimally throughout the city considering the various volumes and hazards?
- How does the level of risk in California City compare to other jurisdictions?
- Are there opportunities for capital investment that would enhance CCFD services and/or result in long term cost savings?



Insurance Services Office (ISO)

The ISO is a national insurance engineering service organization that assigns a public protection classification (PPC) to jurisdictions based on fire department services. Insurance companies typically establish insurance rates for individual occupancies or groups of occupancies based on the PPC. PPCs are established using the ISO's Fire Suppression Rating Schedule (FSRS). Once widely used by fire departments to evaluate system performance, the FSRS's use is somewhat limited in that it only evaluates fire protection (not EMS, which most fire departments now provide to some degree). Also, the FSRS does not consider efficiency (e.g., how many resources are deployed in comparison to the number of actual calls). Though not as comprehensive, ISO ratings are still appropriate to consider as part of a more comprehensive system performance review. Combined with other assessments, ISO standards are useful, but not by themselves.

ISO Mitigation
Working Together for Safer Communities

ISO rates the capabilities of local fire departments to respond to and suppress fires. Insurance underwriters often base fire insurance rates on the ISO class of the local jurisdiction. Requirements for fire apparatus are addressed in the ISO fire department resources criterion. Based on the results of Basic Fire Flow calculations, one computes the minimum number of engine companies and pump capacities needed to meet estimated fire suppression requirements. Depending on the total number of buildings that are at least three stories or 35 feet in height, the need for ladder or service companies is also determined.

To analyze a community's fire protection, the ISO uses a grading system of 1 to 10. A community protection factor of one is the highest possible grade with insurance rates likely to be lowest for the community (ratings increase by 1 for every 10 credits, e.g., Class 1 = 90.00+ credits, Class 2 = 80.00–89.99, Class 3 = 70.00–79.99, etc.). A community with a Class 10 rating means that there essentially is no recognized fire protection system or availability of water for fire suppression. Only a very small number of communities with very effective water distribution systems and mostly career fire departments are able to achieve a rating of one. CCFD was last evaluated by the ISO in 2014 and currently holds a Class 3/3x rating. Most insurance carriers band groups of ratings together for efficiency; thus, there may be no difference in treatment of a Class 1 versus a Class 4. Therefore, depending on the rating system used by individual insurance carriers in California City, there may be little or no fiscal advantage to property owners by being in a certain PPC. According to a report issued by the ICMA in 2002: In its practical application, the rating schedule is a tool used for assessing the insurance rate charged in a specific community on a specific property. Generally, the better the rating schedule classification, the lower the insurance premium charged. Although one cannot say with certainty what the effect of an improved rating schedule classification might be in a specific community, improvements in the classification in California City, California.

Phone: 760-373-4841
Fax: 760-338-3251
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Insurance Services Office (ISO)

ISO awards points for distribution of apparatus (and by proxy for distribution of stations). ISO reviews the distribution of engine and ladder companies and awards points based partially on the percent of developed area within 1.5 miles of an engine company and 2.5 miles of a ladder. Quints can be used to obtain points toward number of engine companies needed and number of ladder companies needed. A quint can be counted as a full engine company and a half ladder company, or as a full ladder company.

A review of the Fire Suppression Rating Schedule can be useful to city decision-makers when trying to develop an understanding of the components evaluated by ISO engineers as part of their community survey process and as a tool in developing a comprehensive analysis of their fire department.

The three components evaluated by ISO in making a final determination of rates are:

Fire department: number of engines, training, personnel, procedures, etc. (50 percent). Equipment accounts for 26 percent, personnel for 15 percent, and training for the remaining 9 percent.

Water supply (40 percent).

Emergency dispatching and communications (10 percent).

National Fire Protection Association (NFPA)

The NFPA is an international, nonprofit organization dedicated to reducing the worldwide burden of fire and other hazards on the quality of life by developing and advocating **scientifically based** consensus codes and standards, research, training, and education. The NFPA recommendations are standards and guidelines developed by committees of chief officers, volunteer representatives, union officials, and industry representatives. Although the NFPA's standards are often codified into local ordinances, and it is important to consider NFPA standards since NFPA standards are the de facto standard for evaluating different levels of fire and emergency service protection.

According to multiple studies, extension of the fire beyond the room of origin begins approximately six to eight minutes after ignition, and flashover of the room of origin occurs within 10 minutes of ignition. (Flashover is the simultaneous ignition of all flammable material in an enclosed area.) In some modern rooms with low ceiling and plastics, flashover can occur in two to four minutes, according to studies by the National Institute of Standards and Technology. The most widely recognized standard used in response time analysis is outlined in NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments. NFPA 1710 was established in 2001 and contains two important recommendations. The standard recommends 4-person staffing for all engine and truck companies and a 5-minute dispatch-to-arrival time to be met on 90 percent of calls. The time increases to 6 minutes when one minute is added for call processing/dispatch time, as recommended in NFPA 1221, Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems. The 5-minute period includes one minute for turnout time and four minutes for travel.

The travel time translates to a driving distance of two miles from the first-due fire station to the incident (driving at an average speed of 30 mph. NFPA 1710 was formulated on the basis of expert opinions and task sequencing (what must be done and how many it takes to do it) and NFPA 1710 has become the de facto benchmark for the emergency response community.

Commission on Fire Accreditation International

The CFAI consists of representatives from the International Association of Fire Chiefs (IAFC) and the International City/County Management Association (ICMA). The CFAI and the accreditation process were designed to establish industry-wide performance measures for overall organizational performance and the establishment of the standard for a jurisdiction is purely voluntary. While a small fraction of fire departments across the nation (about 100) have gone through the accreditation process and others are working toward that goal, most departments are focusing on the creation of a "Standards of Response Coverage" document (one of four items required for accreditation). The CFAI does not make many explicit recommendations on standards for fire/EMS departments to adopt. Rather, it encourages a thorough assessment of risks in the community, public expectations and the resources needed to meet expectations given the risks.

Commission on Fire Accreditation International

Occupational Safety and Health Administration (OSHA)

OSHA develops regulations to protect workers from occupational injuries and illnesses. OSHA states that "Firefighting is a dangerous and physical labor-intensive occupation. Although technologically the tools and equipment used by firefighters have changed dramatically over the years, the basic goals have remained almost unchanged: to preserve life and protect property by successfully extinguishing fires—and not get hurt in the process. To accomplish this, firefighters must be able to quickly and efficiently gain access to a fire and apply an extinguishing agent (typically water, but increasingly foam and other agents are gaining popularity). This requires emergency responders to operate in dangerous environments where they are at high risk for serious injury or death. To protect the health, safety, and welfare of firefighters, the federal government enacted regulations to ensure that firefighters operate in and around structure fires safely." While there are many regulations that apply to firefighting operations, one of the most critical is **29 CFR 1910.134**, which addresses requirements for respiratory protection in IDLH (immediately dangerous to life and health) atmospheres, including structural firefighting.

Enacted by the Department of Labor and the Occupational Safety and Health Administration (OSHA), 29 CFR 1910.134, also known as "Two-in/Two-out," mandates that there must be a minimum of four personnel on the scene of a structural fire before personnel can initiate interior operations. Two firefighters must remain on the exterior of the structure, properly equipped with full turnout gear and self-contained breathing apparatus (SCBA) to act as a RIC in the event the firefighters operating inside the structure become incapacitated or trapped. Depending on local staffing levels, the number of firefighters responding on various units may need to be increased by two or three from the levels outlined in NFPA's guidelines if they are to meet OSHA regulations which are, **in fact, legal requirements**. Additional standards for staffing are related to OSHA's regulations for firefighter safety.

Although OSHA allows one RIC member to have an additional role such as incident commander or safety officer, as long as rescue activities can be performed without jeopardizing the safety of other firefighters, a pump operator cannot make up part of the RIC unless the apparatus is in a positive water source, which allows the pump to be unstaffed for a period.

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us
20890 Hacienda Blvd.
California City, CA 93505

Interjurisdictional Comparisons

To gauge a department's performance, it is often helpful to compare it with other departments that are similar in size to local partners, or are similar in scope and complexity of risks. There might be good reasons for not being close to the average; for example, some departments have greater risk in their service area and thus need more resources, which require more money. Regardless, comparisons with departments with similar risks provides a good starting point for benchmarking and raising questions related to system performance. While interjurisdictional comparisons can be subject to misinterpretations of data that cannot be perfectly compared or defined, they are still of value. Benchmarking is useful as an input into the planning process, but is not directly indicative of the quality of the services provided by the California City Fire Department.

Analytically, benchmarking is simply a point of reference used to improve the understanding of the department as a whole. It is not the intent of this section to make definitive judgments or implications regarding the quality of service (favorable or otherwise) provided by CCFD or departments in the comparison group. The comparisons are, however, quite useful for identifying trends as well as issues to be further explored. The jurisdictions selected for comparison were chosen because of their general similarity risk, locality, and complexity to California City.

The fire departments are not perfectly comparable. This is not a scientific sample, the sample size is relatively small, and some of the data may not be perfectly co-measurable (apple-to-apple comparisons). Sources of comparative data include direct contact with the departments, surveys, U.S. Census 2010 estimates, department web pages and contacts.

Response Times

Response time is one of the most common performance measures used by the fire service because it is understood by citizens, easy to compute, and useful in the evaluation of end results. It is the way most citizens evaluate the level of service provided; though, response time itself really is not a measure of the quality of service, though it does reflect the timeliness of service, which is one attribute desired by citizens. While demand for services and individual unit workloads dictate how many stations and apparatus are needed in a community, response times dictate where specific resources should be placed. To determine overall response time, the clock starts when an individual calls 911 and stops when the first emergency provider arrives at patient's side or the scene of the incident.

Response times here are defined to inclued 4 components:

Call Processing/Dispatch – This time begins when the call taker/dispatcher answers the 911 call and ends when the first unit is dispatched.

Turnout – This is the time elapsed from dispatch to departure from the station (or other location); it comprises activities such as donning protective gear and boarding the apparatus.

Travel – This period begins with departure from station and ends when the unit advises they are on the scene. It does not include the time to actually reach the fire or patient after arrival at the street location of the incident.

Vertical – This is the amount of time from arrival at the scene to arrival at the side of the patient or the site of the fire.

More and more departments are adopting the 90th percentile for reporting response times, mostly due to NFPA 1710's use of this measure. A fractile response time of "6" at the 90th percentile means that units respond in "6" minutes, or less, 90 percent of the time. The remainder beyond the compliance fractile (90th percentile in this case) is the operational tolerance for the system, meaning the system is designed with the understanding that 10 percent of the calls will have response times that exceed the target. Although it is possible to design a system that may ensure rapid response close to 100 percent of the time, it is generally not cost-effective.

Buildings with average vertical response times over two-minutes and over x calls per year may be classified as higher priority locations and resources placed closer in order to reduce total response times (MMJ manufacturing facilities). While the speed of response is not directly indicative of outcome or quality, response times do affect the number of lives saved and the value of property losses averted when an emergency occurs. This means that while arriving in three or four minutes every time does not guarantee everyone will live and there will be less damage, more people can be helped or the fire can be put out before the entire building is consumed when emergency personnel arrive in five minutes rather than 10 or 20. Fire spreads quickly after ignition and the faster it is found and extinguished, the better the results; similar to someone suffering from life threatening symptoms, the probability of survival increases the quicker the patient is treated.

Factors Impacting Response Time Goals

Decisions about response time goals are not easy to make. Although the standards discussed above provide a framework for setting goals, it is ultimately up to the municipal government policy-makers and the fire department to determine appropriate response times and service levels based on the needs of the community we serve. Common factors that should be taken into account include population density, call volume and distribution by type of call, land use, and available resources.

Population density is the most basic and common measure used to define whether an area is urban, suburban, or rural. With California City being 204 sq mile and most residence living together in one area, California City is unique in that it can be considered urban, suburban, and rural. The more people you have in an area, the higher and more concentrated your call volume will be. The U.S. Census defines urban and rural areas on multiple levels. On a county or city scale, the simplified Census definition of an urban area is an area with at least 1,000 people per square mile. All other areas are rural.

- **Urban – 2,000+ people/sq. mile or incorporated**
- **Suburban – 1,000–1,999 people /sq. mile or within one mile of a city's limits**
- **Rural – under 1,000 people /sq. mile**

Emergency Medical Services (EMS)

Guidelines published by Basic Trauma Life Support International (a widely known training institute) suggest that a trauma patient's odds of survival are directly linked to the amount of time that elapses between the injury and definitive surgical treatment. Prevention of death and disability secondary to acute coronary syndromes is also an issue of time. The American Heart Association 2005 guidelines for CPR and Emergency Cardiac Care emphasize the importance of shortening response time to suspected cardiac arrest patients. If brain tissues are deprived of oxygen, they will begin to die within four to six minutes. For that reason it is imperative to begin resuscitation measures as soon as possible. A recent System Planning Corporation study in Ottawa, Ontario, found that defibrillation was most effective if it was provided within six minutes of the patient's initial collapse.

The study also found the following:

- Effectiveness decreased significantly as the interval between cardiac arrest and defibrillation increased between six and 11 minutes.
- After 11 minutes, the odds of patient survival were extremely poor.
- The odds of patient survival were doubled if ALS (paramedic) care was provided alongside BLS (layperson/police officer/EMT) defibrillation at all points prior to 11 minutes.

EMS systems should attempt to achieve travel times of 3–4 minutes for medical first response and 6–8 minutes for advanced life support (paramedic level care). Nationally, the closest thing to a response time standard for paramedic (ALS) transport units in an urban/suburban EMS system with automatic defibrillation-capable first responders is eight minutes in 90 percent of the critical (i.e., life-threatening) calls. This de facto standard is an amalgamation of generally accepted criteria or rules-of-thumb. No standards-making consensus group has ever formally defined a standard for ambulance response times. Generally, various EMS systems interpret the idea of a standard in two ways. Some jurisdictions view the 8-minute standard to mean eight minutes and all of the 59 seconds that follow; other jurisdictions view it as eight minutes exactly. The latter, more stringent definition is suggested and is more consistent with the medical principles on which it is based.

The American College of Emergency Physicians noted that for every minute of cardiac arrest the chance of survival decreases up to 10 percent.

In California City, ALS first responder services are provided by the CCFD fire engine companies as well as by transport-capable Hall medic units; therefore, the response time for the first arriving unit should be the same as the NFPA 1710 six-minute response time. This form of response time measurement is called a fractile response time because it is stated in terms of the fraction of calls responded to within a specified time. A fractile response time standard specifically acknowledges that there will be some response time outliers in even the best-performing EMS systems. In this case, 10 percent of calls can have response times greater than eight minutes and the system can still meet the standard. The standard specifically does not use average response time as its measurement because arithmetic averages can be distorted by a small number of outliers. The USA Today ran a series of investigative reporting articles on EMS services across the country (July 28-30, 2003). The title of one article was "Six Minutes To Live or Die." In this article, new research was cited from the Mayo Clinic that suggested the six-minute mark is when lives are saved or lost.

Fire Stations and Interjurisdictional Comparison

Another input to determining the number of stations needed is to look at other departments. Two measures of station coverage are the square miles protected per fire station and the number of citizens protected per station. In an urban setting with high population densities, stations will be closer together than in rural and suburban areas and thus will protect fewer square miles but more people. The average area served per station, therefore, is an indirect measure of the level of service, since the area served is related to response times. Less area per station generally results in lower response times, though not always since street layouts impact travel time to a large degree. The ISO's ideal of 4.5 square miles per station is very close to the real-world average of the comparable departments. The population per station is a proxy for demand, and a rough indicator of productivity. More people per square mile generally implies higher risks (e.g., more buildings and buildings closer together). The population per station is based on the resident population protected; it does not include visitors or non-resident workers.

There are approximately 14,179 people protected with one CCFD fire station in California City. Once a decision to add or rebuild a station has been made and the site(s) selected, the process moves on to determining the size of each station—how many units and people should it be designed to house? While an architect will work with the department to determine the exact size and layout of a new station, there are some basic factors a department should consider from the beginning:

- How many units will need to be housed at the station during its lifetime? (Apparatus bays typically make up the largest portion of a fire station.)
- How many personnel will staff the units?
- What facilities will they need (sleeping quarters, parking, fitness facilities, etc.)?
- Will additional units and personnel need to be housed at the station in the foreseeable future?
- How many offices do we need?
- Do we want a community space for the public?
- How big are the available lots in the area the station will go?

There are several questions that need to be answered before deciding on the priority of a new station, or one which is considered for upgrade. How large is the current service deficiency? How fast are calls being handled in that area? How many calls would a new station in that area handle? To what extent would the addition of a station in that area correct the deficiency?

Future Service Levels – If there is no current deficiency, when will there be a service deficiency in the area in the future? Is the deficiency a function of response times, workload, or both? Cost of Alternative Solutions – What alternatives to building a station exist in the area, e.g., expanding/renovating the current station. What are the costs and benefits of each option? How large is the current service deficiency? How fast are calls being handled in that area? To what extent would a new station correct the problem? How many calls would a new station handle? Are there alternatives to building a station?

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us
20890 Hacienda Blvd.
California City, CA 93505

Fire Stations and Interjurisdictional Comparison

Just as the location of apparatus is tied together with the location of stations, the number of apparatus required based on risk is tied to the staffing of those units. Apparatus and personnel response complements based on risk level are discussed in greater detail in the following assessment. Aside from the response complement based on risk levels, the NFPA does not make recommendations on the number of front-line apparatus a department should have. The NFPA does, however, make recommendations on the number of reserve apparatus. The NFPA also offers a suggested ratio of eight to one in terms of front-line to reserve engine and ladder apparatus. ISO recommends a ratio of reserve to front-line apparatus of either 1:4 or 1:3, depending on the type of apparatus and the frequency with which it is used.

Stations/units must be located with redundancy (back-up units) to achieve stated travel time objectives established by the community. This footprint is usually found in very densely populated urban areas and is especially evident in EMS services located in urban areas with very high demand for service. (Overlap can be achieved with additional stations or additional units in existing stations.) The 3,000–3,200 response level (very high category above) is the point at which units are often considered "busy" and their availability needs to be evaluated. At this point, response times often will begin getting longer from frequent call overlap (calls to the same first-due area arriving back-to-back). As units become busier, the chances for overlap or simultaneous alarms increase, and second-due units begin to answer more calls. This causes a domino effect where unit B is dispatched to a call in unit A's area because unit A is already engaged, causing unit B to be unavailable for the next call in its own area. Unit C must then respond to unit B or unit A's area, and so forth.

How much time a unit is unavailable due to being involved with another incident is better assessment of the impact of workloads on availability and response times. This is the second factor in workload, known as unit hour utilization (UHU). UHU is a calculation that estimates the amount of time a unit is occupied on emergency calls as a percentage of the total amount of hours a unit is staffed and A "first-due" 'area for CCFD station 19 includes the entire 204 square of the fire department response jurisdiction. The addition of a second strategically placed station would divide the 204 square miles into two First due areas.

Phone: 760-373-4841
Fax: 760-338-3251
E-mail: JVincent@calcityfire.us

20890 Hacienda Blvd.
California City, CA 93505

Applicable Standards for Fire Apparatus

There are several federal regulations, fire service consensus standards, and fire insurance standards that have influenced the design of modern fire apparatus. The federal standards include requirements mandated by the National Traffic and Motor Vehicle Safety Act and the Clean Air Act. The fire service standards consist of NFPA Standards 1201, 1500, and 1901. The fire insurance standard is that developed by the ISO, while the CFAI also has references to fire apparatus design and procurement in their assessment manual. National Traffic and Motor Vehicle Safety Act of 1966: This Act mandated that all manufacturers adhere to specific safety standards when designing and constructing motor vehicles. The Clean Air Act has emission control standards that affect engine performance, which led to incorporation of electronic controls on diesel engines. National Fire Protection Association Standard 1201, Developing Fire Protection Services for the Public (1994): This standard includes sections on procurement and maintenance of fire apparatus.

NFPA require the following:

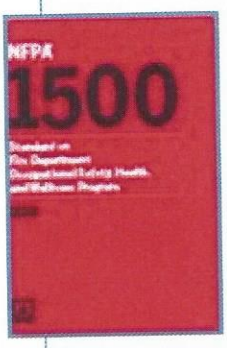
A Inventory control of all fire apparatus and equipment owned and operated by a fire department

B Implementation of forecasting methods to project apparatus service-life expectancies

C Development of written fire apparatus bid specifications in accordance with NFPA standards

D Implementation of routine inspection and preventive maintenance programs

E Implementation of service testing for fire pumpers and aerial devices



National Fire Protection Association Standard 1500, Fire Department Occupational Safety and Health Program (1992): Chapter 4, Vehicles and Equipment, addresses :

- Fire apparatus design requirements
- Training and certification of fire apparatus operators
- safe driving and operating practices for fire apparatus
- safety practices for firefighters riding fire apparatus
- special service fire apparatus
- chassis and vehicle components
- low voltage electrical systems and warning devices
- driving and crew areas
- body, compartments, and equipment mounting
- fire pump and associated equipment
- water transfer pump and associated equipment
- water tanks
- aerial devices
- foam proportioning systems
- compressed air foam systems
- line voltage electrical system
- command and communications
- air systems winches

Hazard Driven Staffing Model

Complement Based on Risk – The number of firefighters needed per engine or truck (ladder) company is bases in scientific research. Areas to consider in determining the amount of necessary companies are;

The ability to start operations with the first arriving unit

- • The ability to rapidly amass critical staffing for incidents of various sizes and types of hazards
- • Firefighter safety
- • Productivity of a unit and the system of units

Like several urban and suburban fire departments nationwide, California City Fire Department considers minimum staffing for its fire apparatus to be four personnel. This minimum staffing level is at the level specified in NFPA standards. NFPA Standard 1500, Fire Department Occupational Safety and Health Program says that "…a minimum acceptable fire company staffing level should be four members responding or arriving with each engine and each ladder company responding to any type of fire." NFPA 1710 also suggests that fire suppression units be staffed with a minimum of four personnel. While the staffing of the unit affects its efficiency, a more important criterion is how fast the total team can be assembled for a given incident regardless of the number of vehicles on which they ride.

The National Fire Protection Handbook, 19th Edition, Typical Initial Attack Response Capability Assuming Interior Attack and Operations Response Capability makes staffing recommendations based on the number of firefighters arriving on the scene of a fire depending upon the type of occupancy (low-, medium-, and high-hazard occupancy). The NFPA staffing recommendations by the type of hazard areas follows:

HIGH-HAZARD OCCUPANCIES (schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other high-risk or large fire potential occupancies): At least four pumpers, two ladder trucks (or combination apparatus with equivalent capabilities), two chief officers, and other specialized apparatus as may be needed to cope with the combustible involved; not fewer than 24 firefighters and two chief officers. Plus, there should be consideration of a safety officer and a rapid intervention team.

MEDIUM-HAZARD OCCUPANCIES (apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces): At least three pumpers, one ladder truck (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 16 firefighters and one chief officer, plus a safety officer and a rapid intervention team.

LOW-HAZARD OCCUPANCIES (one-, two-, or three-family dwellings and scattered small businesses and industrial occupancies): At least two pumpers, one ladder truck (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 12 firefighters and one chief officer, plus a safety officer and a rapid intervention team.

This is the same model adopted by Kern County Fire Department, Bakersfield Fire Department and the County's joint dispatch center.

Medical Marijuana Hazardous Materials (HAZMAT)

Marijuana manufacturing processes utilize various hazardous materials subject to the activity. California City Fire Department shall require a detailed chemical inventory in accordance with the fire code to determine the hazards and classifications of the materials used within any cultivation, infused product manufacturing, and concentrate extraction occupancy facility.

Marijuana cultivation or grow operations include similar materials to that of other indoor botanical or greenhouse operations. They may employ the use of pesticides, insecticidal fumigation or fogging techniques, in addition to nutrients and fertilizers. The materials can range from benign to toxic. Kern County Environmental Health department is the Certified Unified Program Agency (CUPA) for hazardous materials and has been consulted as a resource.

Carbon dioxide (CO2), an asphyxiant gas, is also commonly used in marijuana grow operations. Growing in a greenhouse or indoors, the CO2 levels can be reduced as the plants use CO2 during photosynthesis. Enriching the air with CO2 supports plant growth and development. Carbon dioxide may be stored in mini-bulk cryogenic liquid cylinders that are vacuum jacketed, in steel or aluminum cylinders as liquefied compressed gas or be produced by carbon dioxide generators. Supply gases for CO2 generators are natural gas and/or propane.

Infused product manufacturing and concentrate extraction processes, also known as hash oil extraction, may utilize flammable and combustible liquids, flammable gases (LP Gas), and asphyxiant gases. Water-based marijuana, food-based marijuana, and solvent-based marijuana are typical marijuana concentrates.

Each concentrate requires different processes, as well as the use of different materials to extract the product from the plant. Processing may employ the use of closed-loop solvent extraction, pressurized equipment, steam distillation, heat, ice, water or other methods that do not require solvents.

Processing types include, but or not limited to:

1. Water-based marijuana concentrates extract cannabinoids through the use of water, ice or a solid form of carbon dioxide, better known as dry ice. Materials in this category are typically non-hazardous.

2. Food-based marijuana concentrates extract cannabinoids through the use of food products such as propylene glycol, glycerin, butter, olive oil or other typical cooking fats. Materials in this category may be hazard classified as physical hazards or combustible liquids.

3. Solvent-based marijuana concentrates extract cannabinoids through the use of pressurized closed loop systems and non-closed loop systems. Materials in this category may be classified as physical hazards using flammable liquids (hexane, isopropanol, ethanol, grain alcohol); flammable liquefied gas - LP Gases butane, n-butane, propane; and health hazards, such as, high pressure carbon dioxide gas systems.

There are NO 'closed loop systems' as they have to be opened at some time to get product and waste out, thereby releasing volatile gases.

Compressed gasses

Compressed Gasses of varying materials may be used in multiple processes in cultivation or extraction Examples of these gases include, but are not limited to, butane, propane, and carbon dioxide. Operational processes involving compressed gases that should be documented in a risk analysis should include annual LPG use & storage amounts; annual CO2 enrichment system process and storage amounts – including natural gas generators and for any system containing more than 100 lbs. of CO2; annual compressed gas use & storage (required for 6,000 cu/ft. or more of an inert – 1 lb. of CO2 = 8.74 cu/ft).

Flammable Gases

Flammable gases of varying materials may be used in multiple processes in cultivation or extraction. Referenced standards and/or documents from the IFC in regards to flammable gasses include, NFPA 58, Appendix B of NFPA 58, NFPA 70 and the International Fuel Gas Code. Some examples of these gases include, but are not limited to butane and propane. Operational processes involving flammable gases that should be documented in an analysis, and should include annual flammable gas usage and storage amounts.

Gas Detection and Alarms

Detection of gas or vapor release is typically not required unless the MAQ of hazardous materials are exceeded. However, Chapter 50 of the IFC states, "if the release of hazardous material can cause immediate harm to a person or property a means to mitigate the release shall be provided." This could include the need of a gas detection system.

When using a flammable gas or flammable liquid, processes that are extracting oil from the marijuana plant will need to have some type of leak or gas detection.

Carbon Dioxide is a very common gas used within the marijuana cultivation operation and can also be used to remove the oil from the plant as discussed within the Hazardous Material section. The IFC does not require detection of CO2 unless it is used within a "beverage dispensing application" where the CO2 system exceeds 100 pounds (Section 5307 of the IFC). Although this section within the IFC is not related to marijuana, the hazard of an oxygen depleted atmosphere would be the same. Bottles of compressed CO2 are used within the grow operation to enrich the atmosphere with CO2 to assist in plant growth. If the amount of the CO2 used within a room is an amount that could create an asphyxiation hazard than detection and local alarms must be provided.

When a gas detection system is required, the meter is required to be listed and labeled in accordance with UL 2075. Mechanical interlocks that shut down the flow of gas to the unit when gas is detected are required in all facilities in California City. Atmospheric monitoring must give an audible alarm indicating the presence of gas in the air has reached its permissible exposure limit (PEL). Shutdown procedures must be followed by the manufactures recommendations and the room must be vacated until all alarms read normal. All equipment used in the detection of flammable and/or toxic gases must be approved by the AHJ and may require construction and mechanical permits. Emergency plans for administrative controls and shutdown must be reviewed and approved by the California City Fire Department.

Flammable and Combustible Liquids

Flammable and combustible liquids are used for solvent based extraction of marijuana concentrated products. Hazards involved are the release of the solvent and low-level ignition sources. Often these liquids are under pressure and a release could easily result in an explosion. Classified locations are for areas where flammable liquids are stored, handled, dispensed and or mixed. The locations are held to the requirements of IFC 5703.1.1 Piping systems for flammable and combustible liquids need to be in accordance with IFC Sections 5703.6.1 through 5703.6.11 and the design of such systems need to be in accordance with NFPA 30 Chapter 27.

The following is an email from current and proposed permit holders that California City Fire Department received on May 25th, 2017. This email details the volatile and hazardous substances and gasses that the manufacturers intend to use in California City. Additionally, in the permit interview process CCFD was able to identify additional volatile chemicals that are be proposed, Hexane, LPG, and Isopropyl alcohol.

DISCLAMER - Below is list of extraction methods and use of their solvents only. Of course... any use would be happening in an environmentally compliant room! Our final presentation will provide additional information covering HVAC systems, spark free ventilation, static free paint and C1D1 rooms when needed.

For Alcohol you need:
1 or 2 55 gallon barrels of Food grade ethanol at 194-200 Proof.
This alcohol is used in the winterization of cannabis biomass as the separating solvent while stored in a -80 Celsius Cryo freezer.

The alcohol is recovered during the manufacturing process and reused. All alcohol is stored in fireproof storage lockers or in Cryo freezers.

Small amounts of Acetone or its equivalent, only 1-2 gallons, are used in the cleaning of machinery and tools, glassware and wiping down food grade stainless steel tables.

There is never any pressurization of alcohol or exposure to strong heat or flame source, it goes directly from fireproof storage barrel to winterization in -80 Celsius Cryo freezer to Rotary Evaporator and recovery of alcohol back into barrel or into further winterization in Cryo freezer.

For Hydrocarbons like Butane/Propane:

1 large tank of the hydrocarbon can be used at a time. The gas is recovered by specialized recovery pump, at a very low temperature under vacuum and reused for multiple runs in the closed loop machine.
Small amounts of Acetone or its equivalent, only 1-2 gallons, are used in the cleaning of machinery and tools, glassware and wiping down food grade stainless steel tables.

For CO2:

Compressed CO2 from a tank is pushed through a path and recovered on the other side. Compressors are involved and very high pressures experienced by the metal parts which require frequent replacement. No flammable elements are present only pressure.

Small amounts of Acetone or its equivalent, only 1-2 gallons, are used in the cleaning of machinery and tools, glassware and wiping down food grade stainless steel tables.

For Rosin:
Just pressure and heat in a press.

Hazards Continued

In August of 2008, the National Fire Protection Association released their new edition of the NFPA 472 hazardous materials training standard. This consensus standard was renamed "Competence of Responders to Hazardous Materials / Weapons of Mass Destruction Incidents" in order to more closely relate to its redefined focus.

With the 2008 edition of 472 NFPA dramatically changed its traditional fire based philosophies of hazardous materials response in order to meet the growing needs of other professions. In particular, law enforcement and EMS agencies required standards that would allow for specific operations of their personnel without having the excessive fiscal and training burden brought about by the "Technician" level of training. Additionally, as the industry of hazardous materials emergency response has grown and become more common place, the tradition lines between "offensive" and "defensive" operations have become blurred. Many agencies identified the need to allow traditionally defensive employees to operate in a more offensive manner during incidents in which the risks could be fully quantified and personnel properly protected.

As a general guideline, there are three types or levels of incidents: Level 1, Level 2, and Level 3. These levels can be defined as follows:

Level 1

•An incident involving hazardous materials that can be contained, extinguished, and/or abated using resources immediately available to the public sector responders having jurisdiction. Level 1 incidents present little risk to the environment and/or to public health with containment and cleanup.

Level 2

•. An incident involving hazardous materials that is beyond the capabilities of the first responders on the scene and could be beyond the capabilities of the public sector responders having jurisdiction. Level 2 incidents might require the services of a state or regional response team or other state or federal assistance. This level can pose immediate and long-term risk to the environment and public health.

Level 3

•An incident involving hazardous materials that is beyond the capabilities of a single state or regional response team and requires additional assistance. Level 3 incidents can require resources from state and federal agencies and private industry. These incidents generally pose extreme, immediate, and/or long-term risk to the environment and public health.

Planning Guide for Determining Incident Levels For Response and Training

TABLE S6.1 Planning Guide for Determining Incident Levels for Response and Training Incident Level

Incident Conditions	*Incident Level One*	*Incident Level Two*	*Incident Level Three*
Product identifications	Placard not required, NFPA 0 or 1 all categories, all Class 9 and ORM-D	DOT placarded, NFPA 2 for any categories, PCBs without fire, EPA regulated waste	Class 2, Division 2.3 — poisonous gases, Class 1, Division 1.1 and 1.2 — explosives, organic peroxide, flammable solid, materials dangerous when wet, chlorine, fluorine, anhydrous ammonia, radioactive materials, NFPA 3 & 4 for any categories including special hazards, PCBs & fire, DOT inhalation hazard, EPA extremely hazardous substances, and cryogenics
Container size	Small [e.g., pail, drums, cylinders except 1-ton (910 kg), packages, bags]	Medium [e.g., 1-ton (910 kg) cylinders, portable containers, nurse tanks, multiple small packages]	Large (e.g., tank cars, tank trucks, stationary tanks, hopper cars/trucks, multiple medium containers)
Fire/explosion potential	Low	Medium	High
Leak severity	No release or small release contained or confined with readily available resources	Release may not be controllable without special resources	Release may not be controllable even with special resources
Life safety	No life-threatening situation from materials involved	Localized area, limited evacuation area	Large area, mass evacuation area
Environmental impact (potential)	Minimal	Moderate	Severe
Container integrity	Not damaged	Damaged but able to contain the contents to allow handling or transfer of product	Damaged to such an extent that catastrophic rupture is possible

HAZMAT
NFPA and DOT Emergency Response Guide

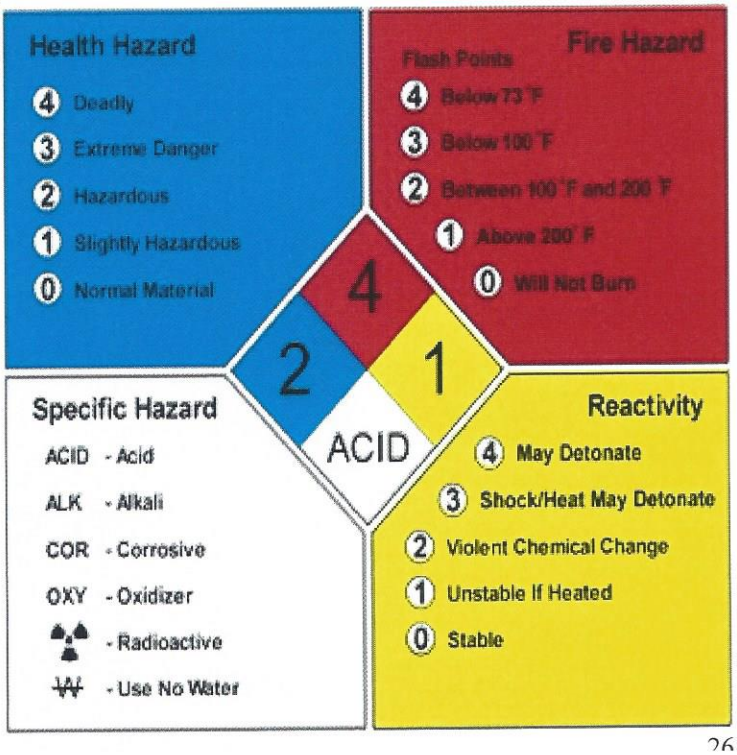
The **NFPA 704 fire diamond** (or hazmat diamond) is described in NFPA Standard 704, maintained by the National Fire Protection Association. The system identifies four key hazards (health, flammability, instability and special) and their degree of severity. Hazard severity is rated numerically, ranging from 0 (minimal) to 4 (severe) .The four divisions are typically color-coded with red indicating flammability, blue indicating level of health hazard, yellow for chemical reactivity, and white containing codes for special hazards.

NFPA Rating Explanation Guide

RATING NUMBER	HEALTH HAZARD	FLAMMABILITY HAZARD	INSTABILITY HAZARD
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures
3	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperature or shock
2	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures
1	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable
0	No hazard	Will not burn	Stable

RATING SYMBOL	SPECIAL HAZARD
ALK	Alkaline
ACID	Acidic
COR	Corrosive
OX	Oxidizing
	Radioactive
W	Reacts violently or explosively with water
W OX	Reacts violently or explosively with water and oxidizing

This chart for reference only : For complete specifications consult the NFPA 704 Standard



NFPA 704 Placards
Medical Marijuana Extraction

Butane

Ethel Alcohol

Hexane

Isopropyle Alcohol

Propane

U.S. Department of Transportation (USDOT)

The U.S. Department of Transportation's (USDOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) today released the 2016 Emergency Response Guidebook (ERG2016), providing first responders with an updated go-to manual to help respond to hazardous materials transportation accidents during the critical first minutes. "We take the safety of this nation and its emergency responders very seriously," said U.S. Transportation Secretary Anthony Foxx. "Our goal is to make sure that these first responders have the most current and accurate safety guidelines possible for use during that initial phase of a hazmat incident." The ERG contains an indexed list of dangerous goods and the associated 4-digit United Nations identification numbers. The ERG also identifies the general hazards those dangerous goods pose and recommends safety precautions in remediating a hazmat incident.

Ethanol
ID No. 1170
Guide No. 127

- Initial downwind evacuation for at least 1000 feet.
- If tank, tank truck or rail car is involved in a fire, ISOLATE for 1/2 miles in all directions; also, consider initial evacuation for 1/2 mile in all directions.

Butane
ID No. 1011
Guide No. 115

- Initial downwind evacuations for at least 1/2 miles.
- If tank, tank truck or rail car is involved in a fire, ISOLATE for 1 mile in all directions, also, consider initial evacuation for 1 mile in all directions; also refer to BLEVE Safety precautions.

Hexanes
ID No. 1208
Guide No. 128

- Initial downwind evacuation for at least 1000 feet.
- If tank, tank truck or rail car is involved in a fire, ISOLATE for 1/2 miles in all directions; also, consider initial evacuation for 1/2 mile in all directions.

Propane
ID No. 1075
Guide No. 115

- Initial- consider downwind evacuations for at least 1/2 a mile.
- If tank, tank truck or rail car is involved in a fire, IOSLATE for 1 mile in all directions, also, consider initial evacuation for 1 mile in all directions; also refer to BLEVE Safety precautions.

Cryogenic liquid (LNG)
ID No. 1972
Guide No. 115

- Initial- consider downwind evacuations for at least 1/2 a mile.
- If tank, tank truck or rail car is involved in a fire, ISOLATE for 1 mile in all directions, also, consider initial evacuation for 1 mile in all directions; also refer to BLEVE Safety precautions.

Carbon Dioxide (Co2)
ID No. 1013(Compressed), 2187(Refrigerated), 1845(Solid)
Guide No. 120

- Initial-downwind evacuation for at least 330 feet
- consider downwind evacuations for at least 1/2 a mile.

If tank, tank truck or rail car is involved in a fire, ISOLATE for 1 mile in all directions, also, consider initial evacuation for 1 mile in all directions; also refer to BLEVE Safety precautions.

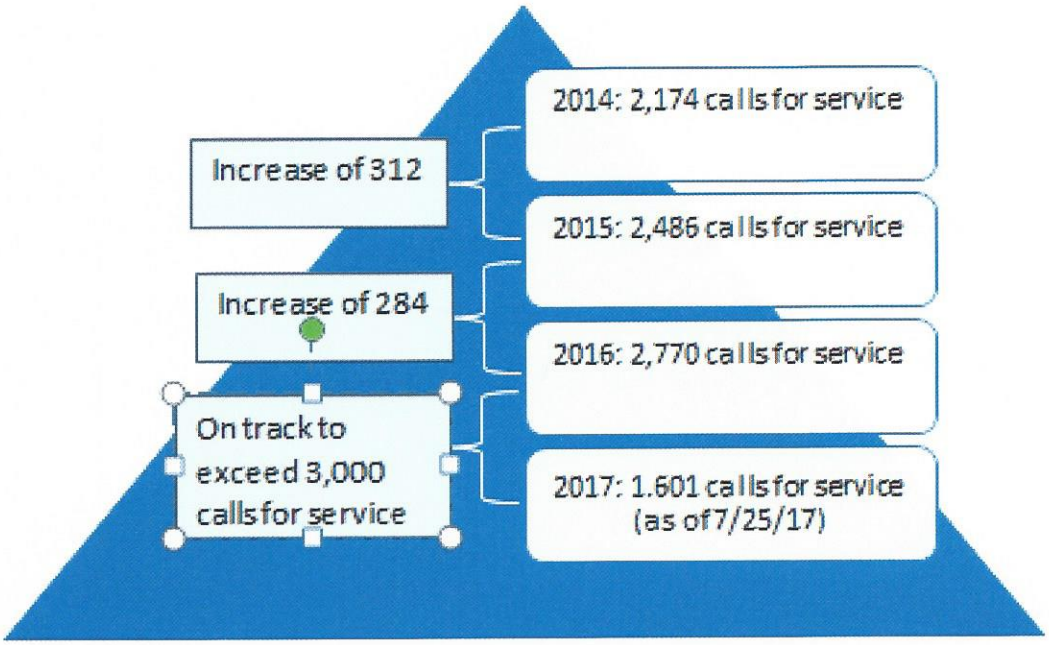
Isobutyl Alcohol
ID No. 1212
Guide No. 129

- Initial downwind evacuation for at least 1000 feet
- Consider downwind evacuations for at least 1/2 a mile.

If tank, tank truck or rail car is involved in a fire, ISOLATE for 1 mile in all directions, also, consider initial evacuation for 1 mile in all directions; also refer to BLEVE Safety precautions.

The ERG identifies small spills as those that involve quantities that are less than 200 liters (52.834 Gal) for liquids and less than 300 kilograms (660lbs) for solids; and large spills than involve quantities that are greater than 200 liters(52.834 Gal) and greater than 300 kilograms (660lbs) of solids.

California City Fire Department Statistics



	Busiest Times of the Day:		Slowest Times of the Day:
1-	2:00 pm	1-	5:00 am
2-	5:00 pm	2-	4:00 am
3-	6:00 pm	3-	1:00 am
4-	9:00 pm	4-	3:00 am
5-	3:00 pm	5-	2:00 am

Average Response Time for Fires (7/1/2014 - 7/1/2017)
8 minutes and 3 seconds (8:03)

Total Fires: 127

Priority Response Time Threshold Report (7/1/14 – 7/1/17)

Building Fire: 53			
0-5 minute reponse: 20 (38%)	5-7 minute response: 16 (30%)	7-10 minute response: 4 (8%)	10 minute plus: 13 (25%)

Cooking Fire in Structure: 11			
0-5 minute response: 3 (27%)	5-7 minute response: 5 (45%)	7-10 minute response: 2 (18%)	10 minute plus: 1 (9%)

Fire in Mobile Home: 3			
0-5 minute response: 0 (0%)	5-7 minute response: 1 (33%)	7-10 minute response: 0 (0%)	10 minute plus: 2 (67%)

Overpressure/ Rupture/ Explosion/ overheat other: 2			
0-5 minute response: 0 (0%)	5-7 minute response: 1 (50%)	7-10 minute response: 1 (50%)	10 minute plus: 0 (0%)

Hazardous Condition: 137			
0-5 minute response: 47 (34%)	5-7 minute response: 33 (24%)	7-10 minute response: 39 (28%)	10 minute plus: 18 (13%)

Gas Leak: 35			
0-5 minute response: 12 (34%)	5-7 minute response: 8 (23%)	7-10 minute response: 10 (29%)	10 minute plus: 5 (14%)

Chemical Spill or Leak: 2			
0-5 minute response: 0 (0%)	5-7 minute response: 0 (0%)	7-10 minute response: 2 (100%)	10 minute plus: 0 (0%)

Gasoline or other Flammable Liquid Spill: 6			
0-5 minute response: 4 (67%)	5-7 minute response: 1 (17%)	7-10 minute response: 0 (0%)	10 minute plus: 1 (17%)

Carbon Monoxide Incident: 12			
0-5 minute response: 5 (42%)	5-7 minute response: 2 (17%)	7-10 minute response: 3 (25%)	10 minute plus: 2 (17%)

Biological Hazard: 1			
0-5 minute response: 0 (0%)	5-7 minute response: 0 (0%)	7-10 minute response: 1 (100%)	10 minute plus: 0 (0%)

Total Fire Loss/ Total Value/ Total Saved by Year

-2014

- Total Value $500,075.00
- Total Loss $250,385.00
- Total Saved $2249,690.00

-2015

- Total Value $3,596,089.00
- Total Loss $668,989.00
- Total Saved $2,927,100.00

-2016

- Total Value $1,453,505.00
- Total Loss $888,105.00
- Total Saved $565,400.00

-2017

- Total Value $2,794,975.00
- Total Loss $34,040.00
- Total Saved $2,760,935.00

Service Level Comparison 2016

City	Population	Calls for Service	Fire Stations	Fire Personnel on scene 8 Min/ 15 Min
California City	14,120	2,770	1	5/8
Ridgecrest	27,616	2,248	2	9/16
Rosemond	18,150	1,568	1	3/9
Tehachapi	14,414	812	1 / 4	9/12
Mojave	4,238	998	1	3/9

	Station Numbers
California City	Station 19
Ridgecrest	Stations 74, 77 (Plus nearby Inyo Kern 73)
Rosemond	Station 15
Tehachapi	Station 12 (13– Golden Valley, 16– Bear Valley, 18– Stallion Springs)
Mojave	Station 14

California City's population is approximately half the population of the City of Ridgecrest. Although the City of Ridgecrest is larger in population, California City has more calls per service.

Ridgecrest is currently serviced by two fire stations with an additional station 5 miles outside of city limits. California City Fire Department runs more calls than Rosemond and Mojave combined. California City's population is nearly identical to the population of the City of Tehachapi, yet California City runs 3.3 times more calls than the City of Tehachapi. Additionally, California City covers 204 square miles making it the third largest city in California.

Recommendations Based on Nationally Accepted Standards and Scientific Data

With the understanding that the Fire department will need to grow into this level of coverage as the city grows, it is expected that this is not an overnight venture. Steps should be put in place to allow for the fire department to grow to these standardized levels of safety and service. The current service model of a four-person engine company and one chief is insufficient to meet the current standards without any additional commercial buildings. The Fire Department should not be expected to maintain its' current staffing model with the addition of up to 130 plus commercial structures.

The two areas of lowest scoring in the ISO report for California City Fire Department were "Deployment Analysis" and "Company Personnel." That review is line with all other supporting data gathered. The deployment model would be enhanced significantly with the addition of a second fire station. The staffing of a second fire company would also address the current deficiencies found in the CCFD ISO report.

	In order to meet NFPA 1710 Requirements, CCFD must add:
3	Battalion Chiefs
1	Fire Marshal
1	Deputy Fire Marshal
2	Fire Inspectors
6	Fire Captains
6	Engineers
6	Firefighter Paramedics

Phase 1

It is realized that this is tall order for California City or any other city at that. Small steps to grow the fire department should be taken immediately to begin to address the risk. When considering a HAZMAT response, OSHA and NFPA 472 require a minimum number of personal to make any mitigation effort. Every HAZMAT must have an Incident Commander, a Safety Officer, and 4 personnel to meet the two-in two-out rule. That is a total of a minimum of 6 responders available 24/7.
Recommended steps:

The following 10 step plan, does not get CCFD to NFPA standard, but will be a solid start towards getting California City to a more manageable level of risk. These steps and associated dates will allow the CCFD to grow with the MMJ industry and the population influx that will be associated with the industry. The timeline should continually be assessed and reassessed to determine if growth is continue as anticipated.

July 25th, 2017
Step 1- Hire 1 full-time fire marshal
Step 2- Convert the three seasonal Firefighter positions to full-time positions
Step 3- Build a second station in California City
Step 4- Purchase a ladder truck/ HAZMAT Engine/ and Fire Engine (with associated gear)

July 1st, 2018
Step 5- Hire Three Additional fire personnel (this would allow for a daily staffing of 6- minimum for HAZMAT response) and purchase one water tender.
Step 6- Hire a deputy Fire Marshal

January 1st, 2019
Step 7- Hire 3 duty chiefs (This allows for an Incident commander from CCFD at all major calls)

July 1st, 2019
Step 8- Hire 3 addition fire personnel (Allows for a 4-person truck company, 3-person engine company)
Step 9- Hire one full-time Fire Inspector

January 1st, 2020
Step 10- Hire 3 additional Fire personnel (Four- person Engine and Four-person truck)

Additionally, initial and reoccurring training will need to be scheduled get all staff certified to handle all hazards in California City. This training would include: HAZMAT Training, Truck Academy, Basic Fire Academy, Paramedic Training. There is also a considerable amount of gear that will need to be purchased to outfit the new needed apparatus.

Appendix

Kern County Fire Department

Incident Summary for Rosemond 2016

COUNT	DESCRIPTION
775	EMS
525	GOOD INTENT CALLS
86	SERVICE CALLS
51	FALSE ALARMS & FALSE CALLS
47	ALL FIRES
44	HAZARDOUS CONDITIONS
40	OTHER TYPE OF INCIDENTS
1,568	**Total**

Kern County Fire Department

Incident Summary for Ridgecrest 2016

COUNT	DESCRIPTION
1249	EMS
395	GOOD INTENT CALLS
229	SERVICE CALLS
174	ALL FIRES
83	FALSE ALARMS & FALSE CALLS
77	HAZARDOUS CONDITIONS
41	OTHER TYPE OF INCIDENTS
2,248	**Total**

Kern County Fire Department

Incident Summary for Mojave 2016

COUNT	DESCRIPTION
593	EMS
237	GOOD INTENT CALLS
45	FALSE ALARMS & FALSE CALLS
39	SERVICE CALLS
38	ALL FIRES
31	HAZARDOUS CONDITIONS
15	OTHER TYPE OF INCIDENTS
998	**Total**

Kern County Fire Department

Incident Summary for Tehachapi 2016

COUNT	DESCRIPTION
447	EMS
175	GOOD INTENT CALLS
97	SERVICE CALLS
33	FALSE ALARMS & FALSE CALLS
29	ALL FIRES
22	HAZARDOUS CONDITIONS
7	OTHER TYPE OF INCIDENTS
2	OVERPRESSURE, RUPTURES, EXPLOSION
812	**Total**

CALIFORNIA CITY FIRE DEPARTMENT

2016

Call By Agency Count	Column Labels
	Calendar 2016
Call Type	CCFD
AE- ARSON EVENT	1
AL3 - ALERT 3	1
AMB2 - AMB ONLY CODE 2	415
AMB3 - AMB ONLY CODE 3	70
AOD - ASSIST OTHER DEPT OR AMB	11
C2MA - CODE 2 MEDICAL AID	76
CC - CITIZEN COMPLAINT	2
CFA - COMMERCIAL FIRE ALARM	5
CMA - CARBON MONOXIDE ALARM	9
FF - FLIGHT FOLLOWING	1
FO - FIRE OUT INVEST. / REPORT	3
FWK - FIREWORKS	12
HC - HAZARDOUS CONDITION	47
IB - ILLEGAL BURNING	15
MA - MEDICAL AID	1581
MAA - MEDICAL AID	109
MAE - MEDICAL AID ECHO RESP	35
MAEA - MEDICAL AID ECHO RESP	1
OF - OUTSIDE FIRE	21
ORX - OFF-ROAD RESCUE	21
PS - PUBLIC SERVICE	119
RFA - RESIDENTIAL FIRE ALARM	38
RX - RESCUE	26
SF - STRUCTURE FIRE / RESPONSE	38
SFR - STRUCTURE FIRE REINFORCED	16
SI - SMOKE INVESTIGATION	24
TC - TRAFFIC COLLISION	33
UTF - UNKNOWN TYPE FIRE	5
VF - VEHICLE FIRE	12
VFR - VEHICLE FIRE REINFORCED	7
VG - VEGETATION FIRE	16
Grand Total	**2770**

Chief Vincent

Sorry I am just now getting a chance to get back to you. I know you are gathering info from several departments, I would recommend contacting Kevin Reinertson at Riverside County Fire, Kevin.Reinertson@fire.ca.gov.

As far as equipment and staffing needs operationally I am not as knowledgeable in that aspect of it. However I can tell you what I do know, and from a planning and fire prevention side what you may be dealing with and some things to consider.

Marijuana processing facilities have within them potential inherent hazards such as confined spaces, hazmat exposure, and combustibility of oils and extracts. Important to note is that although there is legislation proposed to allow volatile extraction, the process is currently NOT legal in California. Residential growing and commercial cultivation as well as sales and processing, and nonvolatile extraction on the other hand is legal starting in January 2018. I would encourage you to do more research and stay up to date on that but this is my current understanding.

There are several levels of hazmat response, at least hazmat tech/spec level would be the minimum in my opinion, a hazmat engine would be even better and Type 1 team would be the gold standard, able to handle any incident along with potential for mutual aid from other Type 1 teams such as Bakersfield. Each have costs and requirements associated with that as you well know. See the attached email from our CUPA supervisor for our County, Cal OES may have grants available for this training.

The following are other recommendations, some of which we discussed over the phone, from the planning/prevention side of things:

-Use the CEQA process to require and Environmental Impact Report (EIR) for large projects coming in. In order to mitigate impacts, require that they provide money for training, equipment, etc.

-Pass a tax measure to fund HazMat service. Spread across all the residents in the City would probably be minimal. Of course the expense and the politics may make this infeasible, but just an idea.

-Pass an ordinance requiring Development Impact Fees (DIFs) This is usually a $ amount per square foot, and it can pay for that additional fire station. The City could advance the funding in advance using these projected fees as a security.

-Pass an ordinance amending the Fire Code, require fire sprinklers in all new buildings. Justify this with findings - topography that contributes to long response times.

-Get legal counsel immediately if you don't already have it, ask for funding from the City

-Get a consultant who specializes in fire service / fire protection planning, to make further recommendations. Ask for funding from the City.

-On the hazmat planning side of things (CUPA) see the attached email. For extracting or CO2 enrichment using inert gasses, there is not a whole lot of regulatory help available. However, if volatiles are used, there are other requirements that kick in. If they do use certain extremely hazardous substances they may become a CalARP facility and thus you may be able to require as mitigation an onsite hazmat ER team. Recommend you talk with your CUPA, Kern County Environmental Health, see what resources or ideas they have. Do they have a Haz Mat Emergency Response Team (HMERT)? If they do could they supplement your resources or provide funding, through a grant or

program?

These are all the ideas that I have based on the info you have given me. My personal advice is, think big picture. This is not about a list of MMJ development projects, this is about a complete transformation of your entire City. It will most certainly create impacts that will make or break your ability to provide for public safety and fire protection.

I wish you well with your tackling this dilemma, if I can be of further assistance please let me know.

Thank you,

Adam Panos
Deputy Fire Marshal
Office of the Fire Marshal, Community Safety Division
San Bernardino County Fire Department
620 S. E Street
San Bernardino, CA 92415-0153
(909) 386-8400
www.sbcfire.org

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From: Riegel, Kristen <kriegel@sbcfire.org> Sent: Wed 7/12/2017 4:56 PM
To: Panos, Adam
Cc:
Subject: RE: MMJ manufacturing/Cultivation

Hi Adam~

Interesting question, as we CUPAs are also trying to figure out how MJ facilities are going to impact CUPAs. Unfortunately, there really aren't any CUPA programs, besides the Hazardous Materials Business Plan, that will help with hazard mitigation. The biggest problem we CUPAs are going to have is does the facility trigger reporting requirements (eg. 55 gallons, 500 pounds, 200 cubic feet)? And if they do, all the facility needs to do is report the chemicals. This is where a good working relationship with your Fire Prevention Bureau is critical, since it is Fire Code that dictates amounts that can be used/stored.

CO2 enriched facilities are another hazard I would be concerned with. Depending upon the size of the operation and amount of CO2 needed, oxygen displacement is always a concern for staff, along with exposure to the MJ. I remember the day Ward and Markloff went to Needles to tour a facility that was operating in Arizona, I believe. Ward came home smelling like "skunk bud" which I mistakenly took for a skunk being hit on Avenue E behind the house. What is our responsibility for staff being exposed??

My other concern would be the flammable chemicals used in the extraction process. While California City Fire are First Responders, are they CSTI Hazardous Materials Technicians/Specialists (possible training need and may be able to get training funds through a grant from CalOES)? I see they are in a bit of a bind when it comes to responders. Do you know if Chief Vincent has had a conversation with Kern County Environmental Health, as they are the CUPA for his area? I would suggest working with the Operational Area folks on concerns and how emergencies are going to be handled. Working knowledge of the Area Plan would be an excellent start.

Other CUPAs are struggling with how to regulate this emerging industry. I'm sorry I don't have better answers for you at this time but hope this helps? I'll be here tomorrow and Friday if you think a discussion would help.

~Kristen

Summary of PPC Review
for
California City

FSRS Item	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunicators	2.71	4
432. Credit for Dispatch Circuits	1.68	3
440. Credit for Emergency Communications	6.94	10
Fire Department		
513. Credit for Engine Companies	5.68	6
523. Credit for Reserve Pumpers	0.50	0.5
532. Credit for Pumper Capacity	3.00	3
549. Credit for Ladder Service	3.02	4
553. Credit for Reserve Ladder and Service Trucks	0.32	0.5
561. Credit for Deployment Analysis	3.62	10
571. Credit for Company Personnel	6.80	15
581. Credit for Training	5.27	9
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	30.21	50
Water Supply		
616. Credit for Supply System	29.79	30
621. Credit for Hydrants	1.45	3
631. Credit for Inspection and Flow Testing	7.00	7
640. Credit for Water Supply	38.24	40
Divergence	-7.04	--
1050. Community Risk Reduction	4.69	5.50
Total Credit	73.04	105.5

Final Community Classification = 03/3X