Running head: INDOOR MARIJUANA CULTIVATION FIRE RISK REDUCTION

Risk Reduction Strategies Directed Towards Indoor Marijuana Cultivation Fires

Christopher Jelinek

Eureka Fire Department, Eureka California

December 2009

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 another.

Signed_____

ABSTRACT

The problem was that the City of Eureka and surrounding communities experienced a significant increase in the number of residential fires whose cause is attributed to indoor marijuana production. This Applied Research Projects (ARP) served to assess methods and strategies for reducing the number of fires whose cause is attributed to Indoor Marijuana Cultivation (IMC), thus decreasing the risk of injury, life loss, and property damage to firefighters, residents, and community members within the City of Eureka.

The descriptive research method was used to answer the following research questions: What are the attitudes and values of community stakeholders relative to indoor marijuana cultivation? What methods and strategies are effective in educating citizens as to the hazards of indoor marijuana cultivation? Which strategies would most likely be effective in reducing the occurrence of residential indoor marijuana cultivation fires?

Stakeholders identified community challenges that reached well beyond the identified fire problem, resulting in the author taking a holistic community-based approach to resolving these challenges, rather than narrowly focusing on the fire problem. Key stakeholders include firefighters, law enforcement, community members, property owners, city and elected officials, and electrical utility companies.

Research was conducted through personal interviews and a literature review to gain a better understanding of stakeholder values, strategies to educate community members and marijuana cultivators, and potential risk-reduction strategies. The author recommends further research to support development of public education and inspection programs, building and land use ordinances, and establishment of cost recovery vehicles for both fire and life-safety inspections and fire suppression efforts associated with IMC inside residences.

TABLE OF CONTENTS

INTRODUCTION

The problem was that the Eureka Fire Department (EFD) is experiencing an increase in the number of residential fires whose cause is attributed to indoor marijuana cultivation, resulting in an increased risk of property damage, injury, and life loss.

Using descriptive research, this paper served to answer the following research questions: What are the attitudes and values of community stakeholders relative to indoor marijuana cultivation? What methods and strategies are effective in educating citizens as to the hazards of indoor marijuana cultivation? Which strategies would most likely be effective in reducing the occurrence of residential indoor marijuana cultivation fires? Personal interviews and a literature review were utilized to answer the research questions.

BACKGROUND AND SIGNIFICANCE

The City of Eureka and surrounding communities have had a significant increase in the number of residential fires whose cause is attributed to indoor marijuana cultivation (IMC). Within the City of Eureka, statistical data for the past seven years shows an average of two to three marijuana cultivation related fires per year, with a noticeable upward trend in the past three years. The cause of fires within IMC residences, locally referred to as “indoor grows”, is typically electrical and attributed to overloaded electrical circuits due to the high wattage necessary to power lighting and ventilation fans used in indoor production. These fires result in an increase in property damage and present a risk of injury or life loss to occupants, neighbors, and firefighters.

In 1996, 56% of California voters approved state-wide ballot Proposition 215, referred to as the Compassionate Use Act of 1996. This proposition, now located in Section 11362.5 of the California State Health and Safety Code, is designed to ensure that seriously ill patients have a

right to obtain and possess marijuana with a valid physician's prescription when the physician has determined that a patient would benefit from the use of marijuana. It also provides an affirmative defense for physicians, patients, and patients' primary caregivers who obtain and use marijuana for medical purposes upon the recommendation of a physician (Tilton, 2009). Since 1996, this act has been extended to medicinal marijuana dispensaries which serve as distribution centers for multiple marijuana patients. The possession, sale, cultivation, or transportation of marijuana for non-medicinal purposes remains a crime under state law (Brown, 2008).

Under the Federal Controlled Substances Act, marijuana remains classified as a Schedule 1 controlled substance. This drug category is presumed to have a high rate of abuse and no medicinal value, and its possession, cultivation, distribution, or transportation remains illegal. As such, individuals who grow and distribute medicinal marijuana remain subject to federal prosecution (State of California Department of Consumer Affairs Medical Board of California, 2007). This discrepancy puts municipalities in the difficult situation of deciding whether or not to permit an activity permissible under California law but illegal under federal law. Unfortunately, this discrepancy makes medicinal marijuana cultivators hesitate in obtaining electrical and plumbing permits required to modify existing indoor wiring and plumbing, as they are fearful that the federal government will use city records to locate and prosecute growers (Reiterman, 2008). This dichotomy additionally results in many medicinal marijuana growers having an aversion to any authority figures, and thus being unwilling to seek guidance to reduce health and life-safety hazards.

However, as of October 19, 2009, under new U.S. Department of Justice guidelines, federal prosecutors will not seek to arrest medical marijuana users and suppliers as long as they conform to state laws. Federal law enforcement officials will still pursue cases where

individuals violate both federal and state law, particularly those who are using medicinal marijuana as a cover for illegally marketing and selling marijuana for profit (U.S. Department of Justice, 2009).

Additionally, Proposition 215 contained no guidelines as to the quantity of marijuana a patient or dispensary could obtain or distribute. As a result, counties and municipalities were left to their own discretion as to the amount of marijuana that individuals or dispensaries could produce. In January 2004, Senate Bill 420 (SB 420), known as the Medical Marijuana Program Act, was passed by the California State Legislature. SB 420 includes guidelines for the minimum amount counties or municipalities shall allow a person to possess and grow. Specifically, SB 420 states the following:

> A qualified patient or primary caregiver may possess no more than eight ounces of dried marijuana per qualified patient. In addition, a qualified patient or primary caregiver may also maintain no more than 6 mature or 12 immature marijuana plants per qualified patient (California Bicameral , 2003, p. 10).

It is important to note that these are minimum guidelines and SB 420 also states that counties and cities may enact medical marijuana guidelines which exceed the state limits.

In actuality, the permissible amount varies greatly from city to city and county to county. For example, San Diego County utilizes the state's minimum guidelines, whereas Sonoma County permits up to 30 plants with up to 100 square feet of indoor garden canopy. Humboldt County, which contains the municipality of the City of Eureka, permits 100 square feet of garden canopy with no limit on plant numbers (Safe Access Now, n.d.). Currently the City of Eureka has no local ordinance which establishes guidelines for permissible number of plants or square

footage that can be dedicated to an indoor grow. Refer to *Figure 1* for an illustration of a typical residential IMC room.

Figure 1: photograph of typical residential IMC room

The prevalence of indoor cultivation in Humboldt County, whether permissible by either state or local ordinances or considered an illegal grow, is significant. Law enforcement authorities in Arcata, a neighboring city to Eureka, estimate that approximately 1,000 of the total 7,500 residences are being used for IMC (Reiterman, 2008). No estimates exist for the City of Eureka, but numbers are likely comparable to the City of Arcata.

Numerous firefighter and life-safety hazards can be present at IMC fires. Among these are entanglement hazards such as ventilation ducting, wiring, electrical cords, twine, and rope. Humboldt County firefighters have reported two separate entanglements at IMC residences where it was necessary to use their personal wire cutters to disentangle themselves. Electrical circuits can be grossly overloaded and electrical meters are occasionally bypassed, creating significant electrocution hazards. Pressurized carbon dioxide cylinders are commonly present (used to promote accelerated plant growth) which presents a potential explosion hazard. Holes

are cut for air vents in walls and ceilings, and floors. Occasionally holes are cut in floor boards or floor joists to allow plants to be grown directly in soil beneath the subfloor. Windows are frequently blocked with black plastic, plywood, or other materials thus eliminating firefighter escape routes. Refer to *Figures 2* and *3* for illustration of firefighter life-safety hazards in IMC rooms.

Figure 2: Photograph of overhead grow lights and electrical cords found in a residential IMC room

Figure 3: Photograph of ventilation tubing and electrical cords found in a residential IMC room

Due to improper electrical installation and the amount of electricity necessary to power the 1000 watt bulbs typically used to support plant growth, these operations are susceptible to serious electrical hazards including fire. Statistically residences containing an indoor marijuana grow is 24 times more likely to catch fire than other residences (Garis, 2009b). Based on the aforementioned life-safety hazards and likely occurrence of fire, this ARP also relates to the broad United States Fire Administration operational objective of reducing by 25% the loss of life of firefighters.

It is also noteworthy that in addition to California, thirteen other states have enacted medical marijuana laws, making possession of marijuana prescribed by a physician legal to varying degrees. These states are Alaska, Colorado, Hawaii, Maine, Maryland, Michigan, Montana, Nevada, New Mexico, Oregon, Rhode Island, Vermont, and Washington (Tilton, 2009). As such, the local fire problem observed in Eureka and neighboring communities may eventually become a national problem.

Finally, This Applied Research Project (ARP) is linked to the course content of the Executive Fire Officer second year course – *R274 Executive Analysis of Community Risk Reduction* via the author's efforts to proactively address our community's IMC fire problem. By answering the research questions, it is the author's intention to research the "Three E's" of fire prevention – education, engineering, and enforcement - in an effort to fully understand the scope of the problem and its potential solutions. The subject of IMC and the related fire problem is complex. The political, cultural, and social issues surrounding it make reduction of the life-safety hazards truly an adaptive challenge.

LITERATURE REVIEW

A comprehensive literature review was conducted to assist the author in forming logical opinions in regards to the IMC fire problem in the City of Eureka. The purpose of this literature review can be divided into three categories based upon the research questions. The first is to identify the attitudes and values of community stakeholders relative to the problem. Second is to identify methods and strategies that could be effective in influencing and educating citizens as to the hazards of IMC. The last objective is to identify strategies that would most likely be effective in reducing the occurrence of IMC fires.

Young (2001, ¶ 1) succinctly defines a stakeholder as, "a person who has something to gain or lose through the outcomes of a planning process or project." These stakeholders can be identified through brainstorming sessions which includes both organizations and individuals. An alternate definition comes from The World Wildlife Foundation, in their 2000 publication titled *Stakeholder Collaboration: Building Bridges for Conservation* defines a stakeholder as, "any person, group, or institution that—positively or negatively—affects or is affected by a particular issue or outcome" (p. 2.2). Though referring to decision making about bio-diversity issues, their publication offers relevance in that it focuses on problem solving by concentrating on building consensus among these stakeholders. Finally, the Department of Urban Affairs and Planning at Virginia Tech describes stakeholders as those who effect change and those who are affected by it (1999). They suggest that although identifying stakeholders can be done in part by building a community profile, it is mainly driven by common sense, networking, and some detective work. In each case, identification of the attitudes and values of stakeholders is presented as a crucial first step in addressing complex issues where there are divergent viewpoints.

Through brainstorming, networking, and personal knowledge of the community, the author established a list of stakeholders whose attitudes and values are relevant to the problem. These stakeholders include firefighters, law enforcement officers, community members, property owners, fire prevention specialists, building department officials, community development officials, local politicians, and electrical utility companies. Each provides important insight into both the challenges and possible solutions of this complex issue.

As previously stated, indoor marijuana grow operations present significant hazards to firefighters. Tilton (2009) and Garis (2009b) noted a variety of hazards, including substandard electrical modifications and bypassed meters, structural modifications, and the presence of entanglement hazards such as wiring, ventilation tubing, rope, and twine. Windows are frequently blocked with black plastic, plywood, or other materials thus eliminating firefighter escape routes (personal observation). Plecas and Malm noted that booby traps, explosives, and dangerous chemical products were discovered at 2.1% of British Columbian grow houses (n.d.). Due to improper electrical installation and the amount of electricity necessary to power the 1000 watt bulbs typically used to support plant growth, these operations are susceptible to serious electrical hazards including fire (Plecas, Diplock, & Garis, 2009). Statistically residences containing an indoor marijuana grow is 24 times more likely to catch fire than other residences (Garis, 2009b).

The law enforcement community has done a substantial amount of research into both the legal ambiguities of Proposition 215 and the ancillary problems that arose as a result of commercial-scale (yields in excess of medicinal needs) IMC. Numerous home-invasion style robberies and murders have been reported. For example, in 2002, two occupants were murdered in their home in Willits, California, with robbers targeting the residence due to the presence of

medical marijuana (Tilton D. , 2009). Home-invasion style robberies in residential grow houses also occur in Eureka. According to 2008 Eureka Police Department (EPD) crime statistics, the city saw a 17% increase in robberies from 2007 to 2008, an increase possibly attributed to the increase in marijuana related home-invasion robberies (Garmire, 2009). An EPD September 14, 2009 press release further illustrates the problem. On September 13, 2009 EPD officers received a report of a home-invasion robbery that had just occurred at a residence on West Wabash Avenue in Eureka. The suspects entered the residence brandishing hand guns and stole dried marijuana and prescription drugs (Eureka Police Department, 2009).

Increased noise, pedestrian traffic and drug related criminal activity are also common near indoor grow residences (Tilton, 2009). Street gangs and organized crime have also been connected to large scale grow operations (Garis, 2009b).

Local law enforcement agencies echo these concerns. In a video titled, *Unwanted Growth: Arcata's Grow-House Crisis* Arcata Police Chief R. Mendosa describes grow houses as primarily criminal operations, meaning property owners or renters are most likely hiding under the umbrella of Proposition 215, and use bogus medical prescriptions to conceal their intent to grow marijuana for profit. Mendosa added, "many of the growers are coming in from out of the area, coming in perhaps under the perception that our community is liberal and permissive in terms of marijuana growing" (Arcata, 2009).

Eureka Police Department Detective N. Hubbard offered additional insight into the local law enforcement perspective related to IMC. Detective Hubbard was selected because he is the primary detective assigned to investigate criminal activity related to marijuana production in the City of Eureka. He described the City of Eureka indoor grow house situation as, "out of control," with every neighborhood in the City having at least one grow house (personal

communication, October 5, 2009). In his words, indoor marijuana is about one thing: "money." He said that only a very small percentage of IMC was related to permitted uses, specifically marijuana being grown for personal medicinal use, but most were either blatanly illegal grows or used Proposition 215 as a way to conceal their intent to sell marijuana for profit. Detective Hubbard also noted an increase in criminal activity either at or within close proximity to grow houses. These crimes include break-in and robbery, not just of the residence purportedly containing an indoor grow but also those of neighbors in close proximity, whose residences may be mistaken for grow houses. He has also observed property damage, including severe water damage, mold, removal of interior load-bearing walls, and numerous electrical wiring problems. He also noted that fertilizers and and other hazardous chemicals are commonly present inside these residences (personal communication, September 1, 2009).

The author also interviewed Eureka Fire Department Assistant Chief R. Goodlive. Chief Goodlive has experience investigating fire and life-safety hazards associated with IMC grows. According to Chief Goodlive, the Eureka Fire Department typically becomes aware of IMC in one of two ways: either during suppression of structural fires or following execution of a police department search warrant to specifically make entry and stop illegal IMC grows. Following execution of the search warrant, building and fire officials are brought into the residence to look for building code violations and fire and life-safety hazards. Chief Goodlive said the prevention bureau looks at approximately 10 grow houses per year, and that the primary hazards discovered during these inspections are electrical in nature. He describes a wide variation in electrical installations, ranging from those that appear professionally installed and are in compliance with relevant codes, to those that are obviously non-compliant with hazards including bypassed electrical meters, overuse of electrical cords, and overloaded circuits. When serious electrical

hazards are noted, the local power authority, Pacific Gas and Electric (PG&E), is notified to pull the electrical meter until electrical repairs are made. Additional hazards noted by Chief Goodlive include blocked access doors and windows and openings cut into walls, floors, and ceilings (personal communication, September 1, 2009).

City of Eureka Community Development Director K. Hamblin was also interviewed. Mr. Hamblin provides oversight for the City of Eureka community development department and is responsible for overseeing and implementing the goals and policies of the City of Eureka's general plan. Mr. Hamblin offered insight as to how IMC can detrimentally affect Eureka citizens' quality of life. He stated that whenever a residence is altered from its intended purpose (in this case from residential to a non-permitted agricultural use), the occupancy must be significantly altered from its original intended purpose. In this case, the changes are substantial, and include electrical and plumbing alterations, removal of interior non-bearing and load-bearing walls, and boarding up of windows and entryways (personal communication, October 9, 2009).

These changes often make the properties unlivable until significant repairs can be made. Such a significant alteration from a property's intended purpose also has detrimental effects on entire neighborhoods. Potential problems cited by Mr. Hamblin include decreased property values, angry or discontented citizens who no longer wish to live in affected neighborhoods, increased risk of theft and violent crime, and generalized neighborhood blight. He described grow houses as being analogous to "a smile with a missing tooth," because of their effect on neighborhoods. These buildings are often unoccupied, and following a police department raid or structure fire will remain boarded up and vacant for a long time (personal communication, October 9, 2009).

Generally speaking, Californians are also stakeholders on this issue. Since its implementation in 1996, the number of Californians supporting the laws enacted following passage of proposition 215 has actually increased. In 1996, 56% of registered voters approved of it. However, a 2004 survey conducted by *The California Field Poll* found that this result has significantly changed, with nearly 3 in 4 registered voters (74%) favoring implementation of the law. This increased support was observed across liberal and conservative political ideologies and all age spectrums throughout the state (The Field Poll, 2004).

However, many local citizens who supported Proposition 215 are asking for greater oversight and regulation to address the ancillary problems that have surfaced in the past five years. As one example, in May 2008 during the public comment period of a City of Arcata Planning Commission meeting, numerous residents testified that they support the use of medicinal marijuana, but had concerns over odor (marijuana has a pungent skunk-like smell), neighborhood and residential dilapidation, and criminal activity that commonly goes hand-in-hand with IMC. These citizens were in favor of additional governmental oversight to reduce the abuse and profiteering associated with indoor grows (Arcata, 2009).

A recently aired A&E television program titled *Pot City U.S.A*, featured interviews of public officials and a few City of Arcata community members who described problems associated with residential grow houses in their neighborhoods. Although the program focused on the City of Arcata, serveral references were made to similar problems occuring in the City of Eureka (seven miles north of Arcata). Resident concerns included neighborhood blight, specifically the degradation of neighborhoods due to the large number of grow houses and their ancillary problems. Commonly expressed concerns included increased frequency of home break-ins and robberies, destruction of housing units due to structural and electrical

modifications, infestation of mildew and mold caused by high moisture levels inside grow houses, and structural fires threatening lives and property of nearby residents. Residents also believed that IMC was responsible for high rent costs (growers apparently being willing to pay significantly higher rents) which decreases available housing stock for working families (Pineo-Burns, 2009).

Two Eureka City Councilmembers, Councilmember J. Leonard and Councilmember L. Glass, were interviewed by the author. They were chosen because of their ability to serve as a conduit for community members to voice concerns about many issues, including residential marijuana cultivation. Both councilmembers described similar concerns being brought forward by constituents including a loss of neighborhood vitality and an increase in dilapidation of single-family homes as a result of indoor grows. Councilmember Leonard described the situation as "sucking the life out of neighborhoods" and Councilmember Glass voiced constituents' fears about increased fire risk and criminal activity. Both Leonard and Glass described neighborhoods as "going dark" or "going quiet." This is attributed to residences formerly occupied by homeowners now being utilized as grow houses by renters who do not necessarily live in them. Both described reports of additional foot traffic into and out of these purported grow houses, individuals their constituents did not want to see in their neighborhoods. Additionally, these indoor grow houses were perceived to attract crime, with residents perceiving that there is an increase in criminal activity in their neighborhoods, including residential and vehicle break-ins and home-invasion style robberies. Essentially, living near a grow house worries people, and reduces their sense of safety and security while residing in their own homes (personal communications, J. Leonard, October 7, 2009; L. Glass,October 15, 2009).

These conditions of neighborhood blight and home deterioration can contribute to increased fire activity in neighborhoods. A United States Fire Administration (USFA) report titled *Socioeconomic Factors and the Incidence of Fire* correlates increased fire activity to variables at three levels: those of the individual, the household, and neighborhoods. Of particular relevance to this paper is how neighborhood quality is connected to fire rates. According to the report, a residential neighborhood's health and vitality is directly related to the quality of its housing stock, specifically the numbers of vacant buildings and levels of general neighborhood decline (USFA, 1997). Vacant houses are four times more likely to experience fires than occupied homes, with these fires at least in part being caused by inadequately maintained heating or electrical systems (USFA, 1997).

Occupants residing in marijuana grow occupancies may face health and safety hazards. In addition to structural and electrical modifications, pestcides, herbicides, fertilizers, solvents and other chemicals are commonly present in IMC residences (Plecas, Diplock, & Garis, 2009). In 2007 the Canada Mortgage and Housing Corporation evaluated 12 former British Columbia marijuana grow residences and identified health hazards including the presence of mold, and contamination from the use of fungicides and insecticides. Some of these residences required extensive repairs to make them inhabitable (Canada Mortgage and Housing Corporation, 2007). Garis (2009b) noted that electrical hazards present at marijuana grow operations increase occupants risk of electrocution and structural fires inside their residences.

In researching effective risk reduction strategies, the author investigated the approach and potential efficacy of educating citizens and indoor marijuana cultivators as to the hazards of IMC. One possible approach is to treat IMC as a community health issue, as the consequences have effects not just on individuals, but entire communities. Schultz and Axner (2009) offer that

one of the main goals of groups involved in either health promotion or community development activities is to help change people's perspective from one of treating existing problems to preventing those problems from occurring. They offer that the best way to do this is by speaking to community members about risk and protective factors. These factors are aspects of a person's environment that make it more likely (risk factors) or less likely (protective factors) that an individual will experience a given problem. Focusing on these factors enables you to change a person's natural tendency to place a spotlight on the problem and instead work towards finding solutions. Specific strategies are to focus your educational campaign in the areas of awareness, prevention, benefits, and costs (Axner & Scultz, 2009).

Additionally, a federal Center for Disease Control program known as the Planned Approach to Community Health (PATCH) offers a similar approach. PATCH was developed "to create a practical mechanism through which effective community health education action could be targeted to address local-level health priorities" (Kreuter, 1992, p. 135). One of the fundamental concepts of PATCH is local ownership of an identified problem. In essence, PATCH begins with education of community members so they can understand what their particular health problems are, thus obtaining buy-in to proposed solutions. PATCH also emphasizes collaboration and partnerships between entities at the local, state, and national level (Kreuter, 1992).

A similar approach comes from the law enforcement community. A program known as Community Oriented Policing (COP) is described as "a collaboration between the police and the community that identifies and solves community problems" (Community Policing Consortium, 1994, p. vii). It has two core components: community partnership and problem solving. COP places an emphasis on making community members active participants in problem solving by

developing positive relationships with them and then trying to address their most pressing concerns (Community Policing Consortium, 1994). This community partnership is based on a foundation of mutual trust, and requires law enforcement officers become familiar with their community's culture to identify the approaches necessary to connect with these members and engage them in the problem solving process (Community Policing Consortium, 1994).

To gain further perspective, Arcata Fire Protection District Assistant Chief D. Cowan was interviewed. Chief Cowan is assigned to fire prevention, and also has knowledge and expertise relative to the IMC problem based in part his efforts to work collaboratively with local officials to find solutions to Arcata Fire Protection District's grow house fire problem. Chief Cowan offered that public education should play a significant role in risk reduction efforts targeting grow houses (personal communication, November 5, 2009). Chief Cowan suggested that risk reductions strategies targeting IMC residences require a targeted phase-in period of two to three years where the initial efforts would focus on public education. This educational program would focus on three separate groups: renters, property owners, and property managers.

D. Cowan suggested several different public education strategies. One component would focus on distribution of educational brochures to businesses selling products necessary for cannabis production such hardware, plumbing, horticultural, and hydroponic supply stores. These brochures could be placed in these locales to educate customers both to the hazards and potential consequences of indoor cannabis production. Additionally, a mailer and information sheet could be developed for distribution to rental owners and management companies. Finally, Chief Cowan advocated for development of a video educating citizens as to the hazards of IMC to be shown on the local television public access channel (personal communication, November 5, 2009).

A public education targeting indoor grow houses was recently utilized in the City of San Francisco. The City of San Francisco has observed a noticeable increase in structural fires and criminal activities attributed to indoor residential marijuana grow houses (CBS 5, 2009). On October 1, 2009, the City of San Francisco's public officials, including District Four Supervisor Carmen Chu, Police Chief George Gascón and Fire Chief Joanne Hayes-White, conducted a press briefing on the IMC hazards the City is experiencing, specifically within the city's Sunset District neighborhoods. Supervisor Chu said the purpose of the press conference was to educate community members about the fire, criminal, and neighborhood problems they are observing, and to offer guidance as to how citizens could help the police department in uncovering these indoor grows. Each emphasized that this was not a discussion about the legalization or non-legalization of marijuana but rather to focus the public's attention on the public safety issues surrounding IMC (CBS 5, 2009). Chief Gascón described the IMC fire problem "serious public safety issue" and Chief Hayes-White said, "The neighborhood's old homes, flat layout and windy conditions make for a potential fire catastrophe" (CBS 5, 2009).

R. Goodlive offered that a public education campaign that educates citizens to the hazards and safe installation related to indoor cultivation may be helpful (personal communication, October 6, 2009). Educational components could include development of a risk reduction program specific to IMC, program announcement in local media outlets, and the use of educational flyers placed in local businesses where growers purchase horticultural supplies, such as hydroponic, hardware, and plumbing supply stores. Additionally, he believed that these growers should obtain building and fire permits to ensure compliance with existing building and fire codes. The permitting and inspection process would focus on correct installation rather than the intended end use so as to encourage individuals to obtain the necessary permits. Chief

Goodlive added that this approach would address the problem in a proactive rather than reactive fashion (personal communication, October 6, 2009).

In addition to assisting the author in identifying the attitudes and values of stakeholders, personal interviews were used to identify potential strategies which would most likely be effective in reducing the occurrence of residential IMC fires. City of Eureka Deputy Building Official J. Fitzhugh suggested that granting building permits to marijuana cultivators may offer a partial solution to reducing building and electrical hazards associated with indoor grows (personal interview, October 6, 2009). Mr. Fitzhugh said building permits obtained for IMC modifications could be processed by the building department. "We [the building department] cannot deny citizens building permits, as the building department is not concerned with end usage, just appropriate installment." To his knowledge, the building department has received only one permit for a new electrical installment intended for use in indoor marijuana grow.

Eureka Police Detective Hubbard had a bleaker outlook as to our ability to reduce IMC hazards (personal interview, October 7, 2009). Mr. Hamblin stated that because the problem is primarily driven by an underground market to sell marijuana for profit, the problem may be unsolvable. "Unless it [marijuana possession and cultivation] becomes legal in all states it will remain profitable." He suggested that the best solution in the current climate would be for the City of Eureka to enforce the California guidelines (possession of 6 mature and 12 immature plants and eight ounces of processed marijuana) rather than the more liberal standard in the Humboldt County district attorney's prosecution guideline of 100 square feet of cumulatively measured vegetative canopy, totaling 99 plants or less.

Detective Hubbard also suggested that property owners and property managers are key stakeholders relative to IMC (personal interview, October 7, 2009). He believes IMC is

primarily a problem that occurs in rentals and that property owners could write limitations into their lease that prohibit indoor cultivation within their residences. The lease agreement could also include language that notifies the renter(s) that the property owner shall conduct periodic unannounced inspections to identify and correct potential maintenance or safety issues, thus serving as a deterrent to renters who would use the property as a locale for IMC .

Another potential strategy to decrease the occurrence of IMC-caused structure fires is to identify IMC residences via energy consumption rates. The California Police Chiefs Association's Task Force on Marijuana Dispensaries in coordination with the California Public Utilities Commission (CPUC) is trying to identify acceptable strategies by which California electrical utility companies can release energy consumption data to municipalities. Chief Mendosa noted that residences using commercial-level energy loads are commonly associated with large indoor grows due to the high wattages of many grow lights required for indoor cultivation, and that energy consumption disclosures by PG&E could narrow law enforcement's search for potential grow houses (personal communication, November 3, 2009).

A proposed solution that has garnered support from both the CPUC and members of the California Police Officers Medical Marijuana Dispensary Taskforce is to ensure commercial energy loads are not sent to residences without proper building and electrical permits. According to R. Mendosa, upon discovery of commercial energy consumption rates by the electrical utility, property owners would be sent notification of commercial energy usage at their residence and be requested to obtain the required building permits. Owners who are not in compliance would simply have their power disconnected by the local electrical utility (personal communication, November 3, 2009).

Since 2004, communities within the Canadian province of British Columbia have utilized a similar approach. Many of these communities also experienced problems associated with indoor marijuana production. Recognizing the negative effects grow operations have on communities, British Columbian legislators passed amendments to what is known as the Safety Standards Act. These amendments included a modification to their controlled substance bylaws which now permits municipalities to have direct access to energy consumption data from BC Hydro, the primary energy provider in British Columbia (Garis, Plecas, McCormick, & Cohen, 2009). Using this data, Electrical Fire Safety (EFSI) inspections are conducted to look for fire, health, and electrical hazards inside residences (Garis, Plecas, McCormick, & Cohen, 2009). Although a law enforcement officer is available for team safety, EFSI actions do not address IMC related criminal activity, but instead focus entirely on mitigating fire and life-safety hazards (Garis, 2009b). Since 2004, the City of Surrey's Electrical Fire and Life-safety Teams have successfully identified and mitigated fire and life-safety hazards in over 1,300 homes (Garis, Plecas, McCormick, & Cohen, 2009). According to L. Garis, since the City of Surrey implemented EFSI teams in 2004, their frequency of fires attributed to IMC has dropped approximately 70%, from an average of 15-20 fires per year to a current occurrence of three fires per year (personal communication, November 11, 2009).

This approach is not without its critics. Carter (2008) argues that the logic utilized to promote amendments to the Safety Standards Act was based on fallacious reasoning that linked cannabis production to "grave public safety dangers" (p. 374). Carter analyzed L. Garis' pilot study titled *Eliminating Residential Marijuana Grow Operations: an Alternate Approach*. He believes the size and scope of the problem was exaggerated, and that identifying all marijuana cultivators as criminals is based upon cultural or political bias, and that this segregation of all

cultivators as dangerous eliminates any possibility that responsible cannabis production can exist peacefully in residential neighborhoods.

Pitt (2007) also disagreed with the tactic of using electrical consumption rates to locate marijuana grow operations. In a newspaper editorial Mr. Pitt refers to these types of inspections as "draconian" and unwarranted invasions of privacy. The basis for his criticisms is that innocent citizens, that is those who are subjected to ESFI team inspections but have legitimate reasons for high electrical usage, become collateral damage in the war on drugs. Pitt writes:

> Collateral damage is trampling the rights to privacy and quiet enjoyment of otherwise law-abiding citizens; citizens who pay the taxes that fund the bureaucratic nightmare that our Public Safety Inspection Team has brought upon far too many such innocent citizens (¶ 3)…Shutting down grow ops is an admirable task. Fishing for grow ops [*sic*] in the guise of a safety inspection based solely on a single numeric ratio between the power consumed compared to the provincial average is asinine and draconian, and smacks of the tactics of Soviet Russia's KGB or other dictatorial regime's enforcers. It certainly does not fit in with a democratic and free society (¶ 17).

Additionally, The CPUC voiced concerns about full disclosure of their customers' energy usage to municipalities based upon their belief that their customers have a right to privacy and also out of concern for the safety of their meter readers. However, Garis contradicted this assertion. Chief Garis said similar concerns were voiced by BC Hydro, but since the utilization of EFSI teams, no instances of violence have occurred against BC Hydro workers (personal communication, November 11, 2009).

Development of a cost-recovery fee schedule could be another tool to discourage illegal IMC residences and therefore reduce firefighter's exposure to their hazards. Schnuer (2003)

writes that fees are commonly implemented as a way to modify behavior. These fees also generate revenue and can therefore be used to offset costs associated with suppression, investigation, or inspection of indoor grows. One example, the implementation of fire alarm billing ordinances which impose fees on property owners for fire or police department response to false alarms has proven effective in reducing the frequency their responses to false burglar and fire alarms (National Burglar and Fire Alarm Association & False Alarm Reduction Association, 2001) . Additionally, municipalities in British Columbia (BC) are implementing bylaws (ordinances) which impose fees on property owners whose residences are used for IMC. Through the controlled substance bylaws, BC communities are able to develop and implement fee schedules that ensure building code violations connected to indoor cultivation be remediated at the property owner's expense (Garis, Plecas, McCormick, & Cohen, 2009, p. 6). Chief Garis added that the City of Surrey implemented a service fee schedule in 2004 for EFSI inspections, property clean-up, fire suppression, and law enforcement efforts directed towards remediation of problems associated with indoor cannabis cultivation. According to Chief Garis, the City of Surrey charges $3,000 for an EFSI inspection and follow-up work necessary to ensure the problems have been mitigated (personal communication, November 10, 2009).

Eureka City Councilmember J. Leonard suggested that permitting zoning variances for various parts of the City for commercial marijuana cultivation and a separate ordinance establishing guidelines for indoor residential cultivation would be appropriate (personal communication, October 7, 2009). Conceptually, the residential ordinance would define permissible square footage and wattage rather than identifying a permissible number of plants. Additionally, he said we should also go at the problem from a fire and life-safety perspective by using existing health, fire, building, and environmental codes. In Councilmember Leonard's

opinion, this would enable city officials to go after "tangible," clearly defined code violations rather than dealing with the ambiguity of whether a grow house is considered a permissible grow under state and county guidelines, or one that will be prosecuted by the Humboldt County district attorney.

During a panel discussion titled *Grow Houses and Governance: The Politics of Pot in Humboldt County,* Humboldt County District Three Supervisor M. Lovelace also advocated using land use standards and building codes to reduce the occurrence of commercial IMC inside residences, adding that clear guidelines eliminates the problem of public officials being placed in the position of determining what is or is not medicine or proper dosage (2009).

Additionally, Councilmember L. Glass favored developing a city ordinance to regulate marijuana production within the City of Eureka (personal communication, October 15, 2009). In his opinion, the key to gaining control of the situation is to take steps which separate out the illegal activity from the permitted medicinal uses. One suggested strategy to accomplish this is to govern and regulate the supply side of medicinal marijuana production. Conceptually, he would like to see a medicinal marijuana dispensary placed inside of city limits which would receive marijuana from either a single source, or a few large commercial grows which would be regulated and taxed by the city. This would eliminate the problems associated with marijuana dispensaries operating as cooperatives, receiving their marijuana from multiple unregulated sources.

The City of Arcata implemented an IMC ordinance utilizing based upon land use standards. This ordinance restricts the maximum size of a residential indoor grow to 50 square feet and a maximum of 1200 watts per residence, prohibits use of pressurized gas cylinders, prohibits sale or dispensing, and requires that the patient shall reside in unit and shall comply

with the local building code. Arcata Police Chief Mendosa said that this ordinance provides clear guidelines for citizens and city officials to determine if a residence is in compliance and has proven successful in that it defines a reasonable and clearly definable standard.

Community Development Director K. Hamblin offered a different perspective (personal communication, October 9, 2009). In his opinion, an ordinance that alters zoning or land use standards is not the solution. Mr. Hamblin suggested that many of the residents growing marijuana are already violating the law and those ordinances that modify land use or zoning standards are difficult to defend in court and have minimal penalties, and thus will have no effect on an individual's decision of whether or not to grow marijuana within the city. Additionally, he offers that indoor cultivation is, "not the property's problem," rather it is the problem of the individuals committing the act. He elaborates by saying that if you successfully change land use standard you risk moving the problem to another community rather than addressing the core issues associated with indoor cultivation.

PROCEDURES

The author utilized a descriptive research methodology for this project. The problem was evaluated from a holistic community-based approach to gain broad perspective both to stakeholders' perceptions of the problem and potential solutions. With this in mind, input was solicited from a multiple sources outside of the fire service to more broadly define and potentially resolve community challenges associated with indoor marijuana cultivation.

Through brainstorming, networking, and the author's personal knowledge of the community, a list of stakeholders whose attitudes and values are relevant to the problem was established. After establishing the list of stakeholders, personal interviews were conducted to assist in answering the three research questions. Interviewees included representatives from the

City of Eureka fire, police, building, and community development departments; the City of Arcata police chief, an Arcata Fire Protection District assistant chief, two Eureka city council members, and the fire chief from Surrey, British Columbia. Each provided unique perspective to attitudes and values of community members, educational strategies, and possible methods to reduce the occurrence of IMC caused structural fires. Interviewees were each asked the following three questions:

1. Do you perceive indoor marijuana cultivation to be a problem for your community?
2. Describe what you believe to be the challenges associated with indoor marijuana cultivation.
3. What are potential solutions to these challenges?

Concurrently, a review of current and relevant literature was conducted to assist in answering the three research questions. To conduct this research the author used internet search engines, the Humboldt State University library, and a review of two separate videos titled *Pot City USA* and *Unwanted Growth: Arcata's Grow-house Crisis*. Additionally, the author attended a panel discussion entitled *Grow-houses and governance: The Politics of Pot in Humboldt County*. Use of these resources better prepared the author to form logical opinions on the subject.

One limitation to the author's research is that at time the research was conducted this was a new, albeit a rapidly developing problem. As such there was limited research in California that identified the scope of the problem and potential solutions, particularly in dealing with the

complexities and challenges associated in distinguishing medicinal marijuana cultivation from indoor grows. However the Canadian marijuana grow house experience, particularly risk reduction practices undertaken in British Columbia is well researched and provides suggestions for risk reduction strategies.

One of the initial assumptions made by the author is that IMC fire problem was largely attributed to occupants who are growing medicinal marijuana for medicinal purposes. This assumption was proven false, as law enforcement officials emphatically stated that the majority of indoor marijuana cultivators are growing cannabis with the intent to sell. This required the author to retool his initial research questions so as to take a more broad-stroke approach rather than narrowly focusing on fire department education and prevention strategies that could be applied to mitigate identified fire and life-safety hazards.

RESULTS

One of the challenges noted in the literature review is the regulatory inconsistency at the federal, state, county, and city level relative to medicinal marijuana and indoor cultivation. The Federal Controlled Substances Act, which is intended to combat recreational drug use, lists marijuana as a Schedule 1controlled substance, meaning it is illegal to manufacture, distribute, dispense, or possess any amount of it. However, effective October 19, 2009, U.S. Department of Justice issued guidelines stating that federal prosecutors will not seek to arrest medical marijuana users and suppliers as long as they conform to state laws. The California state legislature established *minimum* cultivation guidelines of 6 mature or 12 immature marijuana plants per qualified patient, but counties are left to their own discretion whether or not to accept these minimum guidelines or implement more liberal standards. The Humboldt County guidelines permit patients or their caregivers to cultivate marijuana in an area of 100 square feet, not to

exceed 99 plants. Currently the City of Eureka lacks an ordinance to guide residents on permissible indoor marijuana cultivation. This inconsistency results in confusion of legitimate medicinal marijuana as to what is the permissible quantify of marijuana a patient can grow.

Unfortunately, there was consensus among law enforcement officials that indoor marijuana cultivation is largely carried out by individuals who cultivating marijuana to sell for profit, and not for personal medicinal use. Arcata Police Chief R. Mendosa and Eureka Police Detective N. Hubbard stated this is mainly a problem with persons either growing marijuana under the guise of Proposition 215, or blatantly growing cannabis with intent to sell. Chief Mendosa and Surrey Fire Chief L. Garis both believed this was a problem largely connected to organized crime.

During the literature review and personal interviews, stakeholders also revealed a number of neighborhood and community problems. Many residents expressed concerns relative to IMC, including neighborhood blight and degradation of neighborhood quality, increased frequency of home break-ins and robberies, destruction of housing units due to structural and electrical modifications and infestation of mildew and mold caused by high moisture levels, and structural fires threatening lives and property of nearby residents (Arcata, 2009; Pineo-Burns, 2009). Very similar concerns were raised by Chief Mendosa and Detective Hubbard, who cited increased criminal activity including trespassing and break-ins, home-invasion style robberies, and violent crime as common occurrences in or near grow houses.

Eureka City Councilmembers Leonard and Glass both reported their constituents voicing similar concerns. These constituents were worried about loss of neighborhood vitality and an increase in dilapidation of single-family homes as a result of indoor grows. These consituents frequently refered to neighborhoods “going dark” or “going quiet”, attributing this phenomenon

to grow houses frequently going occupied. As a result, a loss of a sense of community was experienced in affected neighborhoods. Their constituents also reported additional foot traffic of individuals they did not want to see in their neighborhoods. Also consistent were reports of residents' apprehension related to increased fire risk and a perception that indoor grow houses attract crime, specifically vehicle and residential break-ins including home-invasion style robberies.

Very similar problems were noted by panel members during an October 26, 2009 moderated forum titled, *Grow-houses and Governance: The Politics of Pot in Humboldt County*. During this discussion, two panel members, local newspaper reporter K. Hoover and Humboldt County Third District Supervisor M. Lovlace relayed that residents reported being fearful of the criminal activity and structure fires occuring because of IMC in their neighboorhoods. M. Lovelace added that people were upset with abuses of Proposition 215 and taking advantage of what was intended as a form of compassion towards seriously ill patients. Communities in the Canadian province of British Columbia also reported problems with indoor marijuana grow operations. These problems included IMC attracting and supporting criminal activity, reducing property values, increased living costs, and negatively impacting the environment (Plecas, Diplock, & Garis, 2009).

The USFA report titled "Socioeconomic Factors and the Incidence of Fire", which correlates increased fire activity to neighborhood quality, supports residents' intuitive concern regarding neighborhood degradation by correlating a residential neighborhood's health and vitality to the quality of its housing stock, specifically the numbers of vacant buildings and levels of general neighborhood decline (1997). Essentially community members living near residential

grow houses feel a loss of safety, security and community vitality in their own neighborhoods, and are at greater risk for exposure to criminal activity and structural fires.

The research examined the relationship between residential rental units and indoor marijuana cultivation. Tilton (2009) and Hubbard (personal communication) were in agreement in their observations that the majority of IMC occurs inside single-family rental units. Residents also believed that IMC was responsible for high rent fees and the lack of affordable housing in local communties (Arcata, 2009).

This trend leads to a potential residential IMC risk reduction strategy, specifically educating property owners as to strategies to deter IMC at their residences. Detective Hubbard, L. Oetker, and H. Hopkin - director of the Humboldt Cooperative marijuana dispensary all advocated that property owners write limitations into their lease prohibiting or restricting indoor cultivation within their residences, and also add language which informs renter(s) that the property owner shall either collect rent inside the residence on a specific date each month, or conduct periodic unannounced inspections to identify and correct potential maintenance or safety issues. Mr. Oetker also strongly advocated for educating property owners to advise renters they cannot grow marijuana in their houses.

Zoning and land use standards were also identified as a possible solution. City of Eureka Council Members Leonard and Glass and Humboldt County District Three Supervisor Lovelace each favored ordinances as a method of control and regulation. Councilmember Leonard favored zoning variances for various parts of the City for commercial marijuana production and sale to medicinal dispensaries, and a separate ordinance establishing guidelines for indoor residential cultivation. He also discussed developing a residential ordinance that defined permissible square

footage and wattage for IMC, rather than establishing a maximum number of plants per indoor grow. Mr. Glass favored development of a city ordinance which attempts to separate out the illegal activity from the permitted medicinal uses. One strategy offered by Councilmember Glass is to govern and regulate the supply side of medicinal marijuana production, by development of a commercial indoor grow that meets all municipal building and fire code ordinances. Marijuana from this type of commercial indoor grow would support local dispensaries, rather than these dispensaries operating as cooperatives which receive marijuana from multiple unregulated sources. Supervisor Lovelace favored using land use standards and building codes rather than measuring quantities of plants or processed marijuana so as not to be put in the awkward position of determining what is medicine or proper dosage.

City of Eureka Community Development Director K. Hamblin disagreed with this type of approach. In his opinion, an ordinance that alters zoning and land use standards is not the solution. Mr. Hamblin suggested that many of the residences producing marijuana are already violating the law and that an ordinance modifying land use or zoning standards will have no effect on an individual's decision of whether or not to grow marijuana within the City.

Development of fees is another potential risk reduction strategy. Development of a fee schedule for of imposing fees has proven effective in modifying behavior. The City of Surrey and other municipalities in British Columbia have imposed fee schedules through the adoption of what is known as the nuisance (controlled substance) bylaw. Municipalities conducting EFSI inspections are billing property owners for the inspections and to ensure the property is made safe at the owner's expense.

Local fire prevention specialists felt that public education directed towards marijuana cultivators and citizens as to the hazards and consequences of indoor cultivation could be effective. Both R. Goodlive and D. Cowan advocated for a public education campaign directed towards various community members as a component of a broader risk reduction program. Each would focus their efforts on educating citizens as to the potential hazards and safe installation practices relative to indoor cultivation. Educational strategies could include program announcement in local media outlets, placement of educational flyers businesses where growers purchase supplies such as hydroponic, horticultural, hardware, and plumbing supply stores. Assistant Chief Cowan also advocated for educating renters, property owners, and property managers as to their rights and responsibilities relative to IMC.

The author identified three groups which utilize collaboration and engagement of stakeholder as a means to obtain buy-in and affect change. Community based health education programs try to alter the community viewpoint from treatment of existing problems to preventing those problems from occurring (Schultz & Axner, 2009). They offer that the best way to do this is by educating community members about risk and protective factors which then highlight solutions rather than the problems.

This process is also consistent with the Federal Center for Disease Control's program known as the Planned Approach to Community Health (PATCH) and the law enforcement's Community Oriented Policing approach (COP). PATCH and COP emphasize local ownership of an identified problem. PATCH begins education of community members so they can understand what their particular health problems. COP takes a similar tact by focusing on community partnership and problem solving (Community Policing Consortium, 1994). It accomplishes this

by placing an emphasis on relationship building with community members in order to make them active participants in problem solving process.

Additionally, Chiefs Goodlive and Cowan were in agreement that residents pursuing IMC should obtain building and fire permits to ensure compliance with existing building and fire codes. The permitting and inspection process would focus on correct installation rather than the intended end use to promote individuals to obtain the necessary permits. Theoretically this approach addresses the problem in a proactive rather than reactive fashion, focusing on the life-safety issues rather than the criminal aspects of an indoor grow. Additionally, City of Eureka Deputy Building Official J. Fitzhugh suggested it would be possible for individuals to obtain building and electrical permits from the city for IMC, as the building department is only concerned about proper installation and not the installation's intended purpose.

R. Mendosa, D. Cowan, and L. Garis were in agreement that electrical utility companies are key stakeholders. Chief Mendosa noted that residences using commercial-level energy loads are commonly associated with large indoor grows due to the high wattages of many grow lights required for indoor cultivation, and that energy consumption disclosures by PG&E could narrow law enforcement's search for potential grow houses. The research revealed two possible approaches. The first option, proposed by the California Police Chiefs Association's taskforce on medical marijuana dispensaries, advocates that property owners be notified when their housing units are consuming commercial energy loads. These property owners would then be requested to obtain the required building permits. Owners who are not in compliance would simply have their power disconnected by the local electrical utility (personal communication, R. Mendosa, November 3, 2009). Garis (2009b) offered an alternate approach. In this case ESFI teams conduct inspections based on energy consumption data provided to municipalities from

BC Hydro. According to Chief Garis, since the City of Surrey implemented EFSI teams in 2004, their frequency of fires attributed to IMC has dropped approximately 70 percent, from an average of 15-20 fires per year to a current occurrence of three fires per year (personal communication, November 11, 2009).

This approach is not without its critics. Pitt (2007) and Carter (2008) oppose usage of EFSI teams. Carter (2008) argues that the logic utilized to advocate amendments to the Safety Standards Act was based on fallacious reasoning that linked cannabis production to "grave public safety dangers" (p. 374). Pitt (2007) also disagreed with this tactic. Mr. Pitt refers to these types of inspections as "draconian" and unwarranted invasions of privacy. Additionally, the California Public Utilities Commission was hesitant to fully disclose their customers' energy consumption data to municipalities based upon their belief that their customers have a right to privacy and also out of concern for the safety of their meter readers.

DISCUSSION

One of the main challenges associated with IMC is the need to separate permissible indoor grows, that is those growing marijuana for seriously ill patients, from the illegal marijuana grow operations established with the intent to sell marijuana for profit. Californians have shown overwhelming support of cannabis use and cultivation in treatment of seriously ill patients (The Field Poll, 2004). Since the passage of California State Proposition 215, marijuana possession, cultivation, and use are permissible for patients and their care providers for certain medicinal conditions, provided the patient has a physician's recommendation (Tilton, 2009). This concept was codified into the California Health and Safety Code, and provides, "a limited affirmative defense to criminal prosecution for those who cultivate, possess, or use limited amounts of marijuana for medicinal purposes" (Tilton, 2009, p. 2). The Marijuana Program Act

(SB 420) supplemented these guidelines and established minimum growth and possession standards that each county and municipality had to abide by. It is noteworthy that this is a *minimum* guideline and there is a wide variance of permissible possession and growth standards in throughout California (Safe Access Now, n.d.). Based upon these numbers on the *Safe Access Now* website, Humboldt County's guideline of 100 square feet of canopy of mature cannabis plants is the most permissive in the State of California. As there is currently no standard in the City of Eureka, there is ambiguity as to whether citizens should abide by the state's minimum guidelines of 6 mature and 12 immature plants or Humboldt County's more liberal standard.

It is unknown how many IMC residences within the City of Eureka are permitted medicinal marijuana grows versus illegal ones. Unfortunately from a fire and life-safety perspective this is beside the point. Garis (2009b) reported that Canadian municipalities which conduct public safety (ESFI) inspections observed that many legal medical grow operations they inspected share the same hazards as the illegal operations. Based upon this firefighters and community members must assume that *any* grow house poses health, fire, and safety hazards unless they have been inspection to ensure safe installation.

This applied research project, though centered on reducing the occurrence of structural fires associated with indoor marijuana cultivation, also identified broader community-based challenges. Stakeholders offered varying perspectives as to both scope and magnitude of the problem, and also potential solutions.

Community members, law enforcement officials, and city council members all reported that indoor marijuana production was a significant concern in the community. Council members Glass and Leonard's constituents were concerned about an increase in dilapidation of single-family homes, neighborhoods "going dark" (referring to the high frequency of grow houses

going unoccupied), and increased foot traffic of disreputable persons they did not want to see in their neighborhoods. The videos *Pot City U.S.A* (2009) and *Unwanted Growth: Arcata's Grow House Crisis* (2009) both featured residents voicing apprehension related to increased fire risk and a perception that indoor grow houses attract crime, specifically vehicle and residential break-ins including home-invasion style robberies. Similar problems were noted by panel members during the moderated panel discussion titled, *Grow-houses and Governance: The Politics of Pot in Humboldt County*. During this discussion Panel members K. Hoover and M. Lovlace conveyed resident's fear of the criminal activity and structure fires occuring due the presence of IMC residences in their neighboorhoods.

Law enforcement views this as a primarily a problem associated with criminal activity. Arcata Police Chief R. Mendosa and Eureka Police Detective N. Hubbard described IMC as mainly a problem with persons either growing marijuana under the guise of Proposition 215 (citizens who use bogus ailments to get a physician's subscription for marijuana), or illegally growing cannabis with intent to sell. This is consistent with Eureka Police Department Police Chief G. Nielson's comment in a January 2009 press release which noted the city had a 17 percent increase of home robberies during 2008; a rise which he believes was attributed to the increase in marijuana-related home invasion robberies. These reports are consistent with the findings of Plecas, Diplock, and Garis who discovered a number of community-level problems at marijuana grow houses, including attracting and supporting criminal activity, lowering property values, increasing living costs, and impacting the environment (2009).

If IMC is viewed purely from this perspective, it can be argued that it is largely a law enforcement problem. This is in fact the primary intervention strategy currently employed in the City of Eureka. If the public and police perception that there are a large number of grow-houses

in virtually every neighborhood in the city are accurate, it is likely that many of the IMC residences are not being discovered, and IMC hazards will remain a community and fire department problem. If you combine this with the liberal Humboldt County IMC ordinance which permits 100 square feet of plant grow space for medicinal marijuana, a significant amount of IMC residences may contain unsafe indoor grows.

In addition, properties which are damaged by IMC or remain vacant following the occupant's arrest will contribute to the general deterioration of a neighborhood, thus exacerbating the problems of neighborhood blight, criminal activity and structure fires. These properties need to be repaired and placed back into market circulation so that neighborhoods can become safe and attractive places to live. Therefore, even if criminal arrest and prosecution of citizens engaged in illegal IMC would not be totally successful in reducing community based problems such as criminal activity and structural fires.

The author researched the feasibility of educating both citizens and indoor marijuana cultivators as to the hazards of IMC, with an emphasis on community-based approaches. Schultz and Axner (2009) suggest the main goal of community-based health education is to modify the approach from treatment of existing problems to preventing those problems from occurring. They offer that the best way to do this is by educating community members about risk and protective factors. Focusing on these protective factors enables you to change a person's natural tendency to place a spotlight on the problem and instead work towards finding solutions.

This is consistent with the Federal Center for Disease Control's program known as the Planned Approach to Community Health (PATCH) and the law enforcement's Community Oriented Policing approach (COP). PATCH emphasizes local ownership of an identified problem (Kreuter, 1992). Similarly, COP approach focuses on community partnership and

problem solving (Community Policing Consortium, 1994). It accomplishes this by placing an emphasis on relationship building with community members in order to make them active participants in problem solving process.

As demonstrated through the research, indoor marijuana cultivation is not just a fire department problem. Unfortunately, indoor marijuana cultivation results in negative consequences such as neighborhood blight, structure fires, and criminal activity, each causing detrimental impacts to neighborhoods and entire communities. It is also fraught with controversy. As such, any proposed risk reduction strategy could be viewed negatively either by citizens who see any allowance of indoor marijuana cultivation as condoning illegal activity while others might view it as an invasion of privacy and an infringement on their right to obtain and use marijuana as a prescribed medicine. For this reason, community-based problem solving strategies such as those advocated for in the PATCH or COP models are essential to engage all stakeholders and obtain buy-in. It is therefore critical that any proposed educational or political strategy include opportunities for public review and comment.

R. Goodlive and D. Cowan advocated for a community-based public education campaigns directed towards various community members. Each would focus their efforts on educating cultivators and citizens as to the potential hazards, consequences, and safe installation practices relative to indoor cultivation. Educational strategies would include program announcement in local media outlets, placement of educational flyers businesses where growers purchase supplies such as hydroponic, horticultural, hardware, and plumbing supply stores. Assistant Chief Cowan also advocated for educating renters, property owners, and property managers as to their rights and responsibilities relative to IMC.

There are additional challenges associated IMC focused educational strategies. First, the legal ambiguities and criminal activity associated with IMC raises doubts as to how receptive marijuana cultivators would be to fire and hazard prevention focused educational outreach programs, either in the form of inspections or public educational materials. As many marijuana cultivators fear criminal prosecution it is intuitive to believe that people engaged in this activity have an aversion to input from authority figures and would therefore be hesitant to reach out to building or fire department officials.

A related challenge is that to some, any IMC educational program which promotes safe and proper installment of grow lights and related marijuana grow materials implies that the fire and building departments are condoning an illegal activity. This strategy also creates a dichotomy between law enforcement and fire department solutions. From the law enforcement point of view, the goal is arrest and criminal prosecution of citizens engaged in illegal IMC. Compare this to both the proposed preventative strategies from Chiefs Cowan and Goodlive and the Surrey, BC's use of their Electrical Fire and Life-safety (ESFI) inspection teams whose desired outcome is hazard mitigation rather than criminal prosecution.

Although controversial, IMC educational strategies directed towards marijuana cultivators could be analogous to community-based needle exchange programs. A needle exchange program is one in which intravenous drug users can obtain hypodermic needles and associated injection equipment. The purpose of these programs is to reduce the general public health threat caused by the spread of HIV and AIDS (frequently transmitted through intravenous drug use), but their existence also might imply that intravenous drug use is condoned by the government (Until It's Over Aid Action Group, 2001). Under this premise one must argue that

the benefit of an IMC public education campaign outweighs the potential consequence that it might be promoting illegal activity.

Another potential strategy to decrease the occurrence of IMC-caused structure fires is connected to the efforts of both the California Police Chiefs Association's Task Force on Marijuana Dispensaries and the California Public Utilities Commission (CPUC) to identify acceptable strategies by which California electrical utility companies can release energy consumption data to municipalities. Chief Mendosa noted that residences using commercial-level energy loads are commonly associated with large indoor grows due to the high wattages of many grow lights required for indoor cultivation, and that energy consumption disclosures by PG&E could narrow law enforcement's search for potential grow houses (personal communication, November 3, 2009). Garis reported that the EFSI team approach, specifically entry and inspection of residences based on energy consumption data, has worked very effectively (personal communication, November 11, 2009).

As previously noted, these approaches are not without their critics. Pitt (2007) and Carter (2008) oppose usage of EFSI teams. Carter (2008) argues that the logic utilized to advocate amendments to the Safety Standards Act was based on fallacious reasoning that linked cannabis production to "grave public safety dangers" (p. 374). Pitt (2007) also disagreed with this tactic. Mr. Pitt refers to these types of inspections as "draconian" and unwarranted invasions of privacy.

The CPUC is hesitant to fully disclose their customers' energy consumption data to municipalities based upon their belief that their customers have a right to privacy and also out of concern for the safety of their meter readers. Chief Garis disagreed with the assertion that meter readers would be put at risk and noted that similar concerns were previously voiced by representatives of BC Hydro (personal communication, November 11, 2009). According to

Chief Garis, since the implementation of EFSI teams, no instances of violence have occurred against BC Hydro workers or ESFI team members (personal communication, November 11, 2009).

If one is to condone this type of approach, one must be mindful that to some, the purported improvements to personal and community safety come at personal sacrifice. One has to consider: is the community threat posed by IMC so overreaching that it is worth sacrificing an individual's right to privacy? The government responsibility to protect their citizens from harm while balancing their citizenry's right to privacy strikes to the very core of this issue. Though ESFI teams are effective in locating and mitigating IMC related hazards, using electrical consumption data to locate grow houses requires careful reflection by a community's stakeholders before implementing such a program.

In addition, collecting electrical energy consumption data is only useful if an IMC residence is using power that is normally intended for use by the occupants. This approach will not work if the indoor grow is powered by an independent generator or the electrical meter is entirely bypassed.

One could also attempt to entirely eliminate indoor cultivation. Under this premise, property owners are one of the key stakeholders. Tilton (2009) and Hubbard (personal communication) were in agreement that the majority of IMC occurs inside of single-family rental units. City of Arcata Community Development Director L. Oetker advises landlords write into their lease agreements that rent shall be picked up at residence on a specific date each month so property owners know what type of activities are occurring at their residences (Arcata, 2009). N. Hubbard was in agreement and added that a lease agreement could include language that notifies the renter(s) of periodic unannounced inspections which will be conducted by the property owner

or property manager to identify potential maintenance or safety issues (personal communication, October 5, 2009). Mr. Oetker added that property owners should request that a copy of utility bills be sent to them so as to monitor energy consumption at their residences.

Educating property owners regarding these strategies (lease modifications, periodic site visits, and requesting a copy of their rental's electrical bill be sent to them) could work as a successful risk reduction strategy. This tactic should prove successful in situations where property owners *do not* want IMC occurring inside their residences. However, in situations where property owners are either openly permitting indoor cultivation or turning a blind eye to its occurrence, this strategy will have no impact. In this situation an established fee or fine schedule may serve as a deterrent. With this in mind, an IMC focused risk reduction plan should give strong consideration for ordinances which hold all property owners accountable for actions occurring on their properties.

Schnuer (2003) writes that fees are commonly implemented as a way to modify behavior. As one example, the National Burglar and Fire Alarm and False Alarm Reduction Associations noted that fee recovery for false fire or burglar alarms has proven successful in reducing the numbers of these types of false alarms (2001). Garis, Plecas, McCormick, and Cohen (2009) noted that City of Surrey and other municipalities in British Columbia have imposed fee schedules through the adoption of what is known as the "nuisance (controlled substance) bylaw". Property owners are billed for EFSI inspections, suppression, clean-up, and any actions necessary to make the property safe.

Based upon these outcomes, development of an ordinance which places greater accountability on property owners for the activities taking place on their property may also serve as a deterrent to IMC. This ordinance could include a fee schedule by which property owners

would be charged fees for an inspection or EFSI program, fire suppression, investigation, and hazard mitigation associated with grow houses.

IMC targeted ordinances and land use standards are another potential risk reduction strategy. Local politicians were in agreement that these concepts have a place in the conversation. Eureka City Councilmember J. Leonard suggested establishment of zoning ordinances for commercial marijuana cultivation and a separate ordinance establishing guidelines for indoor residential cultivation would be appropriate (personal communication, October 7, 2009). Mr. Leonard also favored an ordinance which clearly defines permissible square footage and wattage that can be dedicated to an indoor grow rather than regulating permissible number of plants. Councilmember L. Glass also favored development of a city ordinance with guidelines for commercial production as a means to distinguish between legal and illegal marijuana production, specifically directed for marijuana going to dispensaries (personal communication, October 15, 2009). M. Lovelace also advocated using land use standards and building codes to reduce the occurrence of commercial IMC inside residences. L. Oetker suggested that if building and fire codes don't work (to shut down indoor grows) then that's when we can go to land use ordinances.

Essentially this type of land use ordinance is intended to ensure the rights of qualified patients and qualified caregivers marijuana are protected but restricting marijuana from being distributed in an illegal manner. Based upon the research, the elements listed below could be included in an IMC ordinance:

1. Registration of IMC residences to ensure medicinal marijuana cultivation activity complies with zoning, fire and safety regulations
2. Building and fire inspections prior to residential or commercial IMC

3. Authorization of EFSI inspections
4. Requirement of odor control measures as a component of IMC
5. Restrictions to either size, wattage, or plants, permitted in an indoor grow
6. Prohibition of the sale of marijuana for profit
7. Establishment of minimum distances of dispensaries must be from schools, libraries or parks
8. Development of a fee schedule to recover all direct and indirect costs associated with IMC hazard mitigation, clean-up, fire suppression, law enforcement, or investigative actions
9. Require that every registered property owner of a parcel that contains a building, a structure or other premise that is subject to a rental agreement inspect their property on a periodic basis to ensure that illegal IMC related activity is not occurring on their property.

A local example can found within the City of Arcata's IMC ordinance which restricts the maximum size of a residential indoor grow to 50 square feet and a maximum of 1200 watts per residence; prohibits the use of pressurized gas cylinders; prohibits sale or dispensing; and requires the patient shall reside in unit and shall comply with the local building codes.

K. Hamblin on the other hand expressed doubts that altering zoning or land use standards would be an effective solution. He believes that many of the residents producing marijuana are already violating the law and that a land use or zoning ordinance will have no effect on an individual's decision of whether or not to grow marijuana within the city (personal communication, October 9, 2009).

RECOMMENDATIONS

Based upon the research, the following recommendations are made in an effort to provide stakeholders the necessary tools to reduce the occurrence of indoor marijuana cultivation hazards including structure fires:

1. More research is necessary to fully explore the sociological impacts of indoor marijuana cultivation on communities
2. More research is necessary to determine the feasibility using electrical consumption data to discover and remediate fire and life safety hazards commonly found in marijuana grow operations
3. Establish guidelines limiting either square footage, wattage, or plant numbers of an indoor grow, to provide law enforcement clear direction to aid them in criminal prosecution
4. Implement an aggressive education campaign which educates both residents and marijuana cultivators as to the hazards and potential consequences of indoor marijuana cultivation
5. Development of an IMC ordinance which requires registration of residences to ensure medicinal marijuana cultivation activity complies with zoning, fire and safety regulations
6. Development of an IMC related ordinance to include a fee schedule to recover all direct and indirect costs associated with IMC hazard mitigation, clean-up, fire suppression, law enforcement, or investigative actions
7. Development of an IMC related ordinance which requires every registered property owner of a parcel that contains a building that is subject to a rental agreement inspect their property on a periodic basis to ensure that illegal IMC related activity is not occurring on their property.

8. Educate property owners of strategies they can use to protect their properties, including lease modifications, periodic site visits, and request that a copy of their rentals electrical bills are forwarded to them so they can monitor energy consumption at their residence.

In summary, this ARP focused on defining the attitudes and values of stakeholders so as to develop plausible risk reduction strategies. The social, political, and cultural issues surrounding marijuana cultivation have created an adaptive challenge, one that requires engaging all stakeholders in the hopes of making proactive and positive changes. This is truly an emerging challenge for the City of Eureka. The author believes a pragmatic approach, one which balances many citizens' view that marijuana is permissible as medicine with the public safety threats of IMC is paramount to developing long-term solutions to this unique but growing community problem.

REFERENCES

City of Arcata. (Director). (2009). *Unwanted growth: Arcata's grow-house crisis* [Motion Picture].

Axner, J., & Scultz, M. (2009). *Talking about risk and protective factors related to community issues.* Retrieved October 15, 2009, from The Community Toolbox: http://ctb.ku.edu/en/tablecontents/sub_section_main_1028.htm

Brown, E. G. (2008). *Guidelines for the security and non-diversion of marijuana grown for medicinal use.* State of California Department of Justice.

California Bicameral . (2003, October 12). *Medical Marijuana Program Act, SB 420* . Retrieved September 20, 2009, from http://www.leginfo.ca.gov/pub/03-04/bill/sen/sb_0401-0450/sb_420_bill_20031012_chaptered.pdf

California Health and Safety Code . (n.d.). *Health and safety code section 11357-11362.9.* Retrieved September 26, 2009, from California Law: http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=00951620032+4+0+0&WAISaction=retrieve

Canada Mortgage and Housing Corporation. (2007). *A discussion paper on indoor air quality investigations of houses used for marijuana grow operations.* Ottawa, Ontario: Canada Mortgage and Housing Corporation.

Canada Mortgage and Housing Corporation. (March 2007). *A discussion paper on indoor air quality investigations of houses used for marijuana grow operations.* Ottawa, Ontario: Canada Mortgage and Housing Corporation.

Carter, C. (2009). Making residential cannabis growing operations actionable: A critical policy analysis. *International Journal of Drug Policy, 20(4)* , 371-376.

CBS 5. (2009, October 1). *Raw video: SFPD briefing on indoor pot farms.* Retrieved October 1, 2009, from CBS 5: http://cbs5.com/video/?cid=130

City of Surrey. (n.d.). *Responding to marijuana grow operations: A community handbook.* Surrey: City of Surrey.

Community Policing Consortium. (1994). *Understanding community policing: A framework for action.* Washington DC: Bureau of Justice Assistance Response Center.

Department of Urban Affairs and Planning at Virginia Tech. (1999). *Partnerships and participation in planning*. Retrieved November 8, 2009, from Identify stakeholders: http://www.uap.vt.edu/cdrom/tools/tools2-1.htm

Eureka Police Department. (2009, Septembeer 14). *Police department press release.* Retrieved October 3, 2009, from City of Eureka - police department: http://www.ci.eureka.ca.gov/civica/press/display.asp?layout=14&Entry=128

Garis, L. (2009a). *Discussion Paper: Marihuana medical access regulations.* Surrey, British Columbia: City of Surrey.

Garis, L. (2009b). *Eliminating residential marijuana grow operations - an alternate approach.* Surrey: City of Surrey, British Columbia.

Garis, L., Plecas, D., McCormick, I. M., & Cohen, A. V. (2009). *Community response to marijuana grow operations: A guide towards promising practices.* Surrey, British Columbia: University of the Fraser Valley.

Garmire, S. (2009, January 1). Eureka crime report: City sees drop in many violent crimes. *Times-Standard* , pp. A1, A7.

Humboldt County District Attorney. (2003). Health and safety code, SS 11357-11360. *County of Humboldt Prosecution Guidelines* .

Kreuter, M. W. (1992). PATCH: Its origin, basic concepts, and links to contemporary public health policy . *Journal of Health Education* , 135-139 .

National Burglar and Fire Alarm Association & False Alarm Reduction Association. (2001, August 27). *NBFAA/FARA model fire alarm ordinance governing alarms responded to by fire officials.* Retrieved November 9, 2009, from http://www.faraonline.org/ModelFireOrdinance.pdf

Pineo-Burns, A. (2009, October 9). Pot City U.S.A. *Intervention [Television broadcast]* .

Pitt, R. (2007, September 15). Safety searches 'draconian'[Letter to the editor]. *The News.*

Plecas, D., Diplock, J., & Garis, L. (2009). *Commercially viable indoor marihuana growing operations in British Columbia: What makes them such a serious issue?* Fraser Valley, British Columbia: University of the Fraser Valley.

Plecas, D., & Malm, A. (n.d.). *The Connection between marijuana growing operations and house fires in British Columbia.* Fraser Valley: University College of Fraser Valley.

Reiterman, T. (2008, May 31). Marijuana 'grow houses' are creating problems in Arcata, Calif. *Los Angeles Times* .

Safe Access Now. (n.d.). *California medical marijuana guidelines*. Retrieved October 7, 2009, from Safe access now: http://www.safeaccessnow.net/countyguidelines.htm

Schnuer, R. A. (2003). *The Fire Chief's Handbook, 6th ed.* Tulsa, OK: Pennwell.

Schultz, J. &. (2009). *Talking about risk and protective factors related to community issues.* Retrieved October 12, 2009, from Community Tool Box: http://ctb.ku.edu/en/tablecontents/sub_section_main_1028.htm

State of California Department of Consumer Affairs Medical Board of California. (2007). *Medical marijuana*. Retrieved September 20, 2009, from CA.gov: http://www.medbd.ca.gov/medical_marijuana.html

The Field Poll. (2004). *Release # 2105: Strong support for implementation of prop. 215, the state's medical marijuana law.* San Francisco: Field Research Corporation.

Tilton, D. (2009). *White paper on marijuana dispensaries.* Sacramento, CA: California Police Chiefs Association.

U.S. Department of Justice. (2009). *Memorandum for selcted united states attorneys: Investigation and prosectuions in states authorizing the medical use of marijuana.* Washington D.C.: Office of the Duputy Attorney General.

United States Fire Administration National Fire Data Center. (1997). *Socioeconomic factors and the incidence of fire*. Washington DC: Federal Emergency Management Agency.

Until It's Over AIDs Action Group. (2001, June). *Needle exchange facts.* Retrieved November 22, 2001, from http://www.aidsaction.org/legislation/pdf/Policy_Facts-Needle_Exchange2.pdf

World Wildlife Foundation - Ecoregional Conservation Strategies Unit. (2000). *Stakeholders for collaboration: Building bridges for conservation.* Washington DC: World Wildlife Foundation.