

Running head: ANALYZING THE PROBLEM OF ABANDONED, VACANT AND UNOCCUPIED  
BUILDINGS IN MIDDLETOWN, OHIO

Analyzing The Problem of Abandoned, Vacant and Unoccupied Buildings in Middletown, Ohio

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CERTIFICATION STATEMENT

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

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ABSTRACT

The problem was the Middletown Division of Fire (MDF) did not clearly understand the hazards associated with abandoned, vacant and unoccupied buildings, resulting in an ineffective use of resources; increasing risk to first responders and the community. The purpose of this research was to collect current data and conduct problem analysis of the multiple hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. Descriptive research answered the questions relative to Middletown, Ohio: What is an abandoned, vacant and unoccupied building and the associated fire danger, health risk and criminal potential of these structures? Research was conducted through literature review, interviews and surveys. The results determined that clarification of these often misunderstood terms is the first step to successfully address their significant fire danger, health risk, and criminal potential. Recommendations are for MDF to develop a culture of risk prevention as it begins a community risk reduction effort targeting these buildings and their problems.

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## INTRODUCTION

Throughout the United States many older urban communities struggle with the problems associated with aging buildings. As their useful life comes to an end many of these buildings become dilapidated, abandoned, vacant and unoccupied; resulting in a myriad of problems both expensive and tragic. Jones (2001) reports problems present when a building reaches “the end of its useful life cycle” (p. 30). Shai (2006) adds “buildings have finite life span that decrease with lack of maintenance, resulting in fires, collapse, or both” (p. 150). Accordino and Johnson (2000) state that vacant and abandoned buildings depress the community in several ways. They explain “this type of property affects many aspects of community life, including housing and neighborhood vitality, crime prevention efforts, and commercial vitality (p. 301).

These dangerous buildings pose significant challenges to the American fire service, charged with protecting the life safety of the public and first responder. The National Fire Protection Association (NFPA) indicates these buildings kill six civilians and injure 6,000 firefighters annually (Fahy, Leblanc, & Molis, 2007). They go on to say during the period of 2001-2005 these buildings accounted for a firefighter death per every 100,000 building fires, thereby killing more firefighters than any other building classification (Fahy et al., 2007). The National Institute for Occupational Safety [NIOSH], 2009] charges from 1998 – 2007 a total of 72 firefighters died in unoccupied buildings; 75% of the entire line of duty deaths for that period.

Also, today’s fire service is also charged with preventing dangerous situations before they become emergencies. Federal Emergency Management Agency [(FEMA), 2009] details the United States Fire Administration’s (USFA) five year “operational objectives” that include “develop a comprehensive multihazard risk-reduction plan for 2,5000 communities” (p. SM 1-7).

The city of Middletown, Ohio has an extensive number of vacant and abandoned properties. United States Census (2009) lists Middletown, Ohio with 3,417 vacant housing units (¶ 1). The city of

Middletown, Ohio is located in the counties of Butler and Warren. Metha and Rothstein (2008) report total foreclosures for these two counties in 2008 were “4,294 with the heaviest concentration found in the Amanda/Oneida neighborhoods; the southern part of Middletown, Ohio” (p. 9).

The problem was the Middletown Division of Fire (MDF) did not clearly understand the hazards associated with abandoned, vacant and unoccupied buildings resulting in ineffective use of resources and increased risk to first responders and the community. The purpose of this research was to collect current data and conduct problem analysis of the multiple hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. As a process of descriptive research the following questions were asked:

- (1) What defines an abandoned, vacant and unoccupied building in Middletown, Ohio?
- (2) What is the fire danger associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio?
- (3) What is the health risk associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio?
- (4) What is the criminal potential associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio?

#### BACKGROUND AND SIGNIFICANCE

The Middletown Division of Fire (MDF) is a full-time career organization consisting of 82 paid personnel serving both staff support and operation functions. The staff support consists of four personnel: one training captain, one fire marshal, the fire chief and civilian administrative assistant. The 78 remaining personnel form a three platoon, 24 hour, and seven day operation force. A shift commander oversees five stations, consisting of four engine fire companies, staffing four engines with the fourth cross-staffing a ladder, and three medic crews. The division provides fire, Emergency Medical Services (EMS) and other technical rescue services to the city of Middletown, Ohio.

Middletown, Ohio has a population of approximately 53,000 and a corporate limit of 25.5 square miles. The city is a mix of residential, commercial, and industrial properties and has an interstate, two rail systems, airport and river. Middletown was founded in 1791 and incorporated in 1886. Located in southwest Ohio, in between the cities of Dayton and Cincinnati and close to the Great Miami River, Middletown enjoyed over a century of economic success. The economy was founded in a commercial and industrial base mostly composed of steel and paper mills. All of that has changed significantly in the last two decades.

As the local economy has gone down the run volume for MDF has gone up. United States Census (2009) reports of the 21,447 households in Middletown, 18,461 of them, or 86.1 percent of all households, have income at or below 80 percent of the area median income of \$39,600. The depressed economy has resulted in a shrinking tax base less able to provide emergency services. This has caused a cascade of budget reductions stripping away resources most notably personnel in the form of staffing reductions in 2005 and 2010. During this same time, since 2000 the MDF has experienced an annual increase of 200 – 250 emergency calls per year. Candidly for the last twenty years and especially for the last ten the MDF has been trying and somehow succeeding to do much, much more with less. If nothing changes and current trends continue in opposite directions a very dark outcome is awaiting Middletown, Ohio and the MDF.

As a part of the Executive Fire Officer Program (EFOP) precourse work was required of the second year curriculum, Executive Analysis for Community Risk Reduction (EACRR). The precourse work consisted of extensive data collection and background analysis of Middletown, Ohio and the relationship with emergency calls by MDF. It was during this work a study of census tracts, population data and emergency run information began to demonstrate significant factors driving resources. It had long been known that Stations 83 and 81 were the busiest companies in the city but no real scientific examination had been done to identify root factors and or causes. Through the EACRR precourse work

a community risk profile identified details about these response areas not previously paid much attention. These response areas were composed of neighborhoods that had a large number of buildings identified as abandoned, vacant and unoccupied. Further, while attending the EACRR course at the National Fire Academy (NFA) this author learned the importance of utilizing this information to reduce community risks rather than merely responding to emergencies. FEMA (2009) maintains “the primary goal of the EACRR is to empower the Executive Fire Officer (EFO) with the ability to lead community risk reduction in a strategic manner (SM 1-7).

Founded by where MDF has been, currently is and could expect it to be without change it is imperative organizational efficiency be maximized. Clearly community risk reduction is a substantial part of that process. To do so would best protect the public and the first responder with the limited resources available. For these reasons it is critical for MDF work with key stakeholders to gain and share information in a collaborative effort toward strategic risk reduction effort.

This applied research project was completed as a part of the National Fire Academy's Executive Fire Officer Program (EFOP). The need to describe the current situation in Middletown, Ohio relative to the fire hazards, health risks and criminal potential of abandoned, vacant and unoccupied buildings in an effort to reduce community risk is in unison with the objectives and goals listed as part of the EACRR course. To do so would also support all five operational objectives of the USFA; to reduce the loss of life from fire for the young, old and firefighters while responding to emerging issues. However the greatest connection would be to the fourth operational objective. FEMA (2005) writes “To promote within communities a comprehensive, multi-hazard risk reduction plan led by the fire service (p. 3).

## LITERATURE REVIEW

Extensive literature review of academic journals, articles, books, reports and surveys provided a sound foundation of opinion on the community risk associated with abandoned, vacant and unoccupied buildings. The areas examined for this study were: (1) What defines an abandoned, vacant and

unoccupied building in Middletown, Ohio? (2) What is the fire danger associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? (3) What is the health risk associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? (4) What is the criminal potential associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio?

What defines an abandoned, vacant and unoccupied building? Pressler (1996) describes a vacant building as structures “that have been unoccupied for years, appearing from the outside to be intact” but often lacking framework and systems (p. 42). Klaene and Sanders (2000) segregate the term vacant buildings into two categories, the first as buildings that still having interior systems such as utilities and the second as buildings that have these systems either removed or shut-off. O’conner (2005) suggests there is a difference between an “abandoned structure and a semivacant structure”. He describes the abandoned structure as one that is “truly unsafe” and often without necessary elements such as a floor, walls or roof (p. 85). He then describes the “semivacant structure” as one that may be “boarded-up”; not having the missing building elements but one that may be used by “transients or trespassing children (p.85). In contrast Blaschik (2007) contends the terms are often used to describe the same buildings and therefore mean the same thing. Coleman (2004) describes an unoccupied building as one with “no one inside at the time of the fire” and a vacant building as one “without (or only a few worthless) contents inside” (p. 28). He explains that these terms can and should be used when evaluating risk benefit on the fire ground; unoccupied to describe life risk and vacant to describe property conservation. Scanlon (2000) expresses the importance of distinguishing these terms from one another. He defines a vacant building as one temporarily without occupants, possibly as it is being rehabilitated, whereas an abandoned building is one that has had no “activity for five years” (p. 26). Kidd (1995) describes both an abandoned and unoccupied buildings as “empty buildings” (p. 16). He goes on to explain the key difference is the abandoned building is often without owners or individuals to act as property managers, often allowing dangerous situations to develop. Joyce (1993) uses the

terms vacant and unoccupied interchangeably. She suggests the terms may be used for any building that is “idle” for a period of time short or long, offering seasonal “shut-downs” and permanently “closed” as examples (p. 13). Jones (2001) contends that the term abandoned applies when there is “no viable owner” (p. 30). Hillier, Culhane, Smith, and Tomlin (2003) describe an abandoned building as having “neglect of ownership regarding minimum functional, financial and physical upkeep” (p.93). They contend vacant can occur either short or long term in the normal life of a building and “indicates nothing about financial or physical condition” (Culhane et al., p. 93). Mehta and Rothstein (2009) utilize foreclosure data to describe buildings as abandoned and vacant and unoccupied as subcategories.

In summary the definitions abandoned, vacant and unoccupied buildings are distinctly different. They are often used to describe the same building causing one to make the false assumption they therefore mean the same thing. This is not the case. The term abandoned in its purest sense describes a building that does not have an owner or property manager and very likely is or has fallen into disrepair. Vacant often is used to describe a building without occupants and property. Unoccupied is almost exclusively used to describe a building without tenants, temporary or permanent. These buildings do share common hazards but each has unique issues that define the differences. Not all experts cited would agree but that is the conclusion this author has reached. What this exercise did was reinforce the importance of clarity when communicating. One should not take for granted that what may appear to be simple terms are automatically understood and agreed upon. Doing so could lay the groundwork for failure, large or small to include a community risk reduction program.

What is the fire danger associated with abandoned, vacant and unoccupied buildings? Jones (2001) observes “uninhabited” buildings are occupancies often selected for arson. He continues, very often these fires are slow to be detected resulting in their development into a dangerous size and condition prior to the arrival of the first responder. Dunn (2000) insists that vacant buildings are more dangers than occupied buildings. He explains calls vacant buildings “fire breeders”; one vacant

apartment becomes a vacant building, one vacant building becomes a vacant block, on vacant block becomes a vacant community” (p. 20). Bradish (2005) supports this theory in his description of a multiple alarm fire in a vacant furniture store bracketed by vacant buildings on all sides. Eisner (2000) points out that December 1999 an accidental fire set by homeless persons in a vacant warehouse building located in Worcester, MA resulted in the largest loss of life to firefighters in the United States in twenty-three years. Loeb (1993) declares that after much is taken from a building leaving it vacant what is left is fire potential; both in fuel availability and arsonist motivation. Kidd (1995) finds that vacant, abandoned and unoccupied buildings are often subject to repeated “small fires” set by “vandals” that can over a period of time cause significant damage, concealed and unknown to later trespassers or first responders (p. 17). Joyce (1993) describes the fire potential of “vacant and “idle” property in numbers, amounting to millions of dollars lost to businesses, their host communities and ultimately the American economy. She claims during the period of 1988 – 1992 fires in these properties amounted losses of \$91 million dollars of which \$50 million was determined to be the result of arson. Ley (2009) reports property losses incurred due to vacant building fires in Milwaukee for 2008 was \$1,400, 000.00. Jennings (1996) interestingly remarks that fire can both cause a building to become abandoned as well as result from one. Jones and White (2001) describe that in the beginning one may believe the fire problem associated with abandoned, vacant and unoccupied properties is easily solved “rehabilitate or demolish” (p. 21). They explain that if there is a property owner with funds can be obtained this can done; unfortunately though that is seldom the case. More frequently the problem building without a property owner falls to the municipality. They emphasize that maybe the central issue to a successful strategy targeting the elimination of fires in abandoned buildings is “the identification of an owner or responsible party early in the vacancy cycle (p. 21). O’Connor and Sauerteig (1980) reported on a program called “Arson Warning and Prevention Strategy (AWAPS)” used by municipalities to identify and then prevent these buildings and their problems (p. 43). They

assert “that a community has to know the magnitude of the problem before it can effectively deal with it” (p. 43). In the last three years MDF has experienced an increase of 23% of total calls for service. Within that number has been an increase of 28% of fire calls the National Fire Incident Reporting System (NFIRS) classifies as vacant or abandoned (Appendix A).

The expert opinions discovered while researching the subject of fire danger associated with abandoned, vacant and unoccupied buildings affirmed that this is an area worthy of community risk reduction effort. The fire danger connected with these buildings can be measured in dollars and lives lost; providing weight and passion as motivation to the cause. However, probably the most noteworthy finding was the understanding that the EFO must work fast, with others and in a systematic manner to be successful.

What is the health risk associated with abandoned, vacant and unoccupied buildings? Shai (2006) contends there is a “connection” between these buildings and high occurrence of negative health outcomes such as injury and drug use (p. 151). These “connections may be direct or indirect” (p. 151). An example of a “direct connection” would be injuries resulting from fires set by “individuals preparing drugs and transients starting fires for warmth” (p. 151). He adds that just as dangerous but more difficult to see is the “indirect connection” to these buildings and the larger long-term health issues that surround them and their residents. He emphasizes the interdependent relationship between these buildings and injuries may be seen as an example of how “socioeconomic disparities can influence health” (p. 152).

Augustin, Thomas, Glass, and Schwartz (2008) examined correlation between heart illness and “neighborhood psychosocial hazards, such as violent crime, abandoned buildings, and signs of incivility” (p. 1664). Even after allowing for individual medical conditions they observed an incidence of significant heart health history three times greater than the control group and the probability for heart attack and stroke four times greater than the control group. They believe a new paradigm with

potential to give breakthrough insight into this area would be to examine the “neighborhood” collectively rather than the “individual” in order to better understand “widening health disparities across racial/ethnic and sociodemographic groups” (p. 1664). Lastly, they assert there is growing evidence of a “relationship” between neighborhood hazards and cardiovascular disease (Augustin et al., p. 1668).

Bashir (2002) supports the theory there is substantial evidence indicating a link between dilapidated buildings and poor health. He charges many of these problem buildings contain dangerous “biological and chemical contaminants” and as such are the cause of an “epidemic” of childhood asthma; rates of diagnoses increasing by “70 percent” and morbidity by “50 percent” during the period of 1982 - 1994 (p. 734). He suggests working collaboratively on the multiple hazards these problems buildings present knowing that “even a small positive step can have large effect on the community” (p. 738).

McDaniel, Caughy, O'Campo and Geary (2009) challenge the connection of health risks and neighborhood hazards such as abandoned, vacant and unoccupied buildings. They recognize that in the last twenty years there has been an increase of study in this area, mostly done by “social sciences, and, in particular the area of public health” but suggest the studies have reached questionable conclusions because of reliance upon “observations” rather than measurable and testable data (p. 277). They contend studies that support this connection often have “wide variability” and “inconsistencies” of “analytical procedures” (p. 288). They stop short of saying the connection is faulty only that it has not been proved to the level of certainty required of science. They suggest further research be conducted in a more “methodological and analytical” manner to fully understand the issues at hand (McDaniel et al., p. 290).

Jacobs et al., (2009) dispute there is a connection to neighborhood hazards such as abandoned, vacant and unoccupied buildings citing “there is insufficient evidence linking specific physical

housing changes to specific health outcomes” excepting “lead” and “asthma” (p. 597). Their study of the subject over the last thirty years contends that population health hazards should not be done in a collective manner and “that a more targeted and effective approach” is warranted (p. 603). In the last three years MDF has experienced an increase of 17% of total calls for EMS. 67% of that number was EMS response to districts 81 and 83, identified earlier as having high numbers of abandoned, vacant and unoccupied buildings (Appendix A).

Research in the area of health risks associated with abandoned, vacant and unoccupied buildings has produced some areas of black and white and others as shades of gray. What is generally accepted is that these buildings present a community with health risks such as fire injuries, poison exposure and drug use to name a few. What still are to be debated are the larger and more abstract problems such as higher incidence of cardiovascular disease and stress related illnesses. Therefore this author is influenced to focus more on the generally accepted health risks associated with abandoned, vacant and unoccupied buildings as a means community risk reduction.

What is the criminal potential associated with abandoned, vacant and unoccupied buildings? Kidd (1995) charges these buildings are often used by individuals with various illegal motives such as alcohol, drugs, theft and unlawful occupation. He goes on to explain these activities not only impact the building being ravaged but if allowed unchecked will spillover into the neighborhood and eventually the community. Concerning abandoned, vacant and unoccupied buildings, Ehrhart (2009) offers that as the occupants move out, if some form of security is not maintained, the criminals move in. He goes on to explain the “properties attract trespassers, arsonists, thieves or other criminals” (§ 2). National Vacant Properties Campaign [(NVPC, 2009] reported that abandoned, vacant and unoccupied buildings have been and are a source of crime. They cite the City of Richmond, VA “conducted an analysis of citywide crime data” utilizing various “economic and demographic variables” and found a significant “correlation” between these buildings and criminal potential (§ 1). They point out that a

similar study was done in Austin, TX demonstrating that 83 percent of these buildings were used by “prostitutes, drug dealers, property criminals” (§ 1).

Accordino and Johnson (2000) assert that one of the most discernible symbols of a community in crisis is the increase of abandoned, vacant and unoccupied buildings. In 1999 they conducted an examination by surveying the “200 most populous cities” in the United States and found that approximately “one-third” considered this to be a priority issue. Accordino and Johnson (2000) write “property abandonment has generally not been addressed as a problem; it has been viewed as a symptom, and not a cause, of urban disinvestment” (p. 302). In writing this they suggest that to effectively deal with the negative potential of these buildings, to include criminal potential, a new paradigm is warranted.

When discussing the subject of the negative potential, especially criminal, of abandoned, vacant and unoccupied buildings, the opinions of James Wilson and George Kelling are found to be titan. While this author investigated the issues surrounding these buildings he found their work, primarily their series of articles titled *Broken Windows* to be often referenced and/or excerpted in writings of following subject experts. Wilson and Kelling (1982) recognized and reported on the social process and phenomena that surrounded a neighborhood in decay. They were able to explain that as a building becomes dilapidated and is seen to be “unattended”, it communicates a message that “no one cares” (§ 3). They believe that this signals the beginning of a downward cycle followed by fear and lawless behavior that leads to flight from those who can move away and withdraw from the social system from those who cannot. Through the series of five articles it goes on to explain the symbiotic relationship the building and the community share. As the building rises or falls so may the social order of the community (Wilson and Kelling, 1982).

Literature review concerning the subject of criminal potential associated with abandoned, vacant and unoccupied buildings quickly revealed some of the more obvious issues surrounding these

buildings; they provide opportunity for crime and criminals. Often this is hidden and out of view of the public. Also discovered, less obvious and probably more dangerous was the finding that if these buildings and their problems are not addressed they will extend beyond the lawless and into the normally law abiding society. This process has affirmed that effort in this area is worth undertaking by an EFO with other key community stakeholders.

### PROCEDURES

The purpose of this research was to collect current data and conduct problem analysis of the multiple hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. The procedures utilized to conduct this applied research project were composed of three primary methods: first extensive literature review, second the building and collecting of data via survey instrument, third interviews with local subject experts. For the purposes of replicating and or building upon this applied research individuals need only follow the above processes in the following manner.

The first part of this research began at the National Fire Academy's Learning Resource Center in April 2010. Once completed further examination continued at the Gardner-Harvey library, Miami University, Middletown, Ohio and the Middletown Public Library, Middletown, Ohio until January 2009. Books, magazines, academic journals and web pages were used to answer the following four research questions. Research question one: What defines an abandoned, vacant and unoccupied building in Middletown, Ohio? Research question two: What is the fire danger associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? Research questions three: What is the health risk associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? Research question four: What is the criminal potential associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio?

This applied research project utilized the descriptive method with the intention of not only to gain information on the subject of multiple hazards associated with abandoned, vacant and unoccupied

buildings but to do so while collecting data and information on how it is currently affecting the city of Middletown, Ohio. As a means of gaining this information, collecting the attitudes and opinions of community stakeholders and recognized professionals a survey instrument was created. A cover letter was created explaining the process and purpose for the survey and sent by email to each respondent. The cover letter can be seen in Appendix B. The survey design resulted from the four research questions and the need to gain input from key stakeholders. The key stakeholders were identified in the EACRR course and the literature review. Both a web based survey tool and hard copy survey instrument was used. The survey instrument can be seen in Appendix C. The web based tool was sent electronically to employees within the Middletown Community Revitalization Department, Fire Department, Police Department, Health Department, City Council, and member of the Chamber of Commerce. This was possible because of the availability of technology to disseminate an electronic survey to all groups listed. However this was not the case with neighborhood residents, there was no electronic system readily available to gain the same input from the public at large. For this reason hard copies of the same survey were printed and taken door to door through Middletown city neighborhoods. The city is composed of four wards and in an effort to obtain an unbiased perspective the door to door activities took place until forty total surveys were completed, ten from each of the four wards. Afterwards these hard copy surveys were manually inputted to be measured and added with the other stakeholder groups identified. This was done to gain the fullest perspective of current attitudes and opinions of the community as a whole. The survey was sent January 4, 2010 by email with instructions on how to complete it and requesting it be returned by January 15, 2010. This was followed by subsequent emails, phone calls and meetings offering assistance if needed and the availability to answer questions. Further, all individuals were assured confidentiality and anonymity.

The survey was prepared using eleven questions. This was done believing a short and simple survey could adequately provide the information needed while keeping the request of effort and time of

the respondent modest; thereby increasing the feedback to the survey request. The style of question was Lykert and closed ended, allowing the respondent to select: strongly agree, agree, neutral, disagree, and strongly disagree (Arnold, McCroskey and Prichard, 1967). This form allows the respondent the ability to communicate a degree of opinion while allowing the surveyor clean distillation of data obtained.

The first question asked the respondent to identify which of the population/stakeholder groups they belonged to. This was done to allow examination of individual groups for the purposes of comparison and/or individual study.

Questions three and four related to the terms abandoned, vacant and unoccupied buildings. Question three was structured to discern if the respondent believed the terms were similar, used interchangeably and therefore would benefit from a general approach addressing the shared issues. Question four was purposely set in opposition of question three. It asked if the respondent believed the terms were different, not used interchangeably and therefore would benefit from a specific approach addressing their unique issues. This was done because of information discovered during literature review. That process revealed not always is it understood what buildings are being described by these terms and what issues therefore are at hand. Questions three and four were designed to better understand the basic language and goals of the respondents in order to lay the ground work for a community risk reduction effort to follow. It was made clear in the EACRR course how fundamentally sound the communication must be in the collaborative effort, especially in the beginning.

The fourth, fifth and sixth questions were used to gain insight into the opinions and attitudes surrounding the multiple hazards associated with abandoned, vacant and unoccupied buildings. Each question collected feedback on the individual risk; be it fire, health or crime. This allowed for individual data to be collected to give insight into the single issue while also allowing for comparisons with the other two.

Question seven asked the respondent to rate fire danger, health risk, and criminal potential in priority order. This forced the respondent to compare the hazards giving insight into their priorities. This also was done purposely due to lessons learned in the EACRR course and literature review. It is essential to understand the priority issues of the stakeholders in order to create a strategy that will find support and have sustainability.

Question eight was asked to get insight into the respondent's depth of understanding of the subject. Does the respondent know and or care about the larger and more collective issues these problem buildings present to the community?

Question nine was asked to best understand who the stakeholders see most affected and therefore would expect at the front of a community risk reduction effort.

Question ten was asked to find out who the stakeholders would expect to see at the table discussing the issues and later in the street finding solutions for these problems.

Question eleven was designed to give insight into the respondents understanding of magnitude of the problem as well as to their accurate understanding of the current condition.

A total of 429 surveys were sent and/or handed out for completion. The total population was 6 from the Community Revitalization Department, 85 from the Fire Department, 85 from the Police Department, 6 from the Health Department, 7 from the City Council, 40 from the neighborhood residents, 200 from the Chamber of Commerce. A total of 162 were returned. The survey results can be seen in Appendix D.

As a means to better describe the current situation relative to this research project, interviews were conducted using open ended questions of each of the stakeholder groups by a representative individual. One person, often in a position of responsibility was interviewed from each of the key stakeholder population groups: Mr. Doug Adkins from the Middletown Community Revitalization Department, Mr. Brent Dominy from the Fire Department, Mr. David VanArsdale from the Police

Department, Ms. Jackie Philips from the Health Department, Ms. Anita Scott-Jones from the City Council, Ms. Vanessa Motley a neighborhood resident and Mr. Bill Trick from the Chamber of Commerce was asked to give a 15-30 minute interview. These interviews all took place January 8 – 14, 2010. Interviews were all offered to be conducted at a location most convenient for the individual being interviewed. Four of the interviews took place in their offices. One interview was done in this author's office, another by phone and the last in the home of a resident.

The interview consisted of five questions meant to cover the same areas identified in the EACRR course, literature review and surveys. These interviews were to gain greater detail of both the subject being researched and the current attitudes and opinions of key Middletown stakeholders, who later would be involved in a community risk reduction effort. In doing so answers to research questions one through four were answered.

The first question was designed to get a baseline for how the interviewee saw the problem. The second question was designed to get specific information concerning the problem and the interviewee's area of responsibility and/or influence. The third question was designed to see how the interviewee saw a specific segment of the problem, either from their field or another discipline. The fourth question was designed to obtain a greater understanding of local and current use of subject terminology. The last question was used to gain deeper appreciation for how the interviewee understood the scope of the problem being researched. The exact interview details can be seen in Appendix D.

### Assumptions and Limitations

During the literature review an assumption was made that all research read was truthful unbiased.

During the survey process it was assumed all individuals understood the intent and meaning of the questions being asked and that they answered honestly and without the influence of others being surveyed. This may have been a faulty assumption especially when comparing the electronic and

manual survey data. It is difficult to determine but reasonable to note the interaction between the surveyor and the respondent was different in both the dissemination and collection of responses via electronic versus hard copy. Every effort was made to maintain a common level of unbiased assistance and interaction with both survey processes but it was unavoidable to encounter some differences; a consequence of one being delivered by an email message and the other by a human being.

A limitation of this research was the fact all survey questions were closed-ended. This was done to force answers that would be uniform in order to allow clear distinction of difference and similarity. However, in doing so insight into unique opinions were unavailable. In an effort to address this limitation and to gain further insight into the issues being researched the seven interviews were accomplished using open ended questions.

Another limitation was that only 162 of the 429 surveys, 38% were returned. This limited return percentage calls into question the validity of documented results. Another statistical limitation of the survey was each population subgroup varied in size and therefore carried a different weighted value; affecting the validity of one subgroup as compared to another and/or the data as a whole. Finally though effort was made to be thorough and accurate there could have been the limitation of human error as data was collected and entered.

## RESULTS

Through the process of descriptive research, involving literature review, a survey instrument and personal interviews, there was significant information collected to answer the following four research questions.

The first research question asked what defines an abandoned, vacant and unoccupied building in Middletown, Ohio? Through an extensive literature review of subject matter experts it was found that these terms do not always have the same definition. Sometimes the term vacant building was used to describe a building without occupants and in this case could have the same meaning as unoccupied

(Kidd, 1995). In other circumstances the terms vacant and unoccupied were used to describe two very different buildings; vacant to mean without occupants and interior property and unoccupied to mean without occupants but with interior property, including serviceable systems such as utilities (Coleman, 2004). In some cases vacant and abandoned were used synonymously to describe empty buildings. In other situations vacant was used to describe a buildings that was without tenants and interior property but still a serviceable building and most importantly with an owner and or property manger (Scanlon, 2000). That could be very different for the term abandoned used to describe a building without occupants, interior property, interior systems such as utilities but most importantly without an owner or property manager (Hillier et al., 2003).

A survey instrument was used to collect current attitudes and opinions of key stakeholder in Middletown, Ohio in an effort to better answer this question. Specifically survey questions two and three explored this subject. Survey question two asked respondents if they believed the terms abandoned, vacant and unoccupied buildings were used interchangeably and shared common issues. The two most popular responses were agree with 37% and strongly agree with 23.5% for a total 60.5%. Survey question three was purposely asked in opposition of question two. Survey question three asked respondents if they believed the terms abandoned, vacant and unoccupied buildings were not used interchangeably and had different issues. The two most popular responses were agree with 34% and neutral 27.2% (Appendix D Survey Results).

Personal interviews were conducted of a representative of each key stakeholder in Middletown, Ohio in an effort to more completely answer this question. Personal interview question number four asked how do you define abandoned, vacant and unoccupied buildings? Mr. VanArsdale (personal communication, January 8, 2010) responded: useable, unoccupied building semi permanently without occupants. Abandoned: a vacant, unoccupied building that no one is taking care of any longer. Ms. Phillips (personal communication, January 8, 2010) responded: Vacant are empty buildings that are

kept...abandoned are the opposite vacant buildings that are not kept. Ms. Scott-Jones (personal communication, January 11, 2010) responded: Abandoned building would indicate the owner or tenant is no longer there, no longer taking care of the building and it is deteriorating. Mr. Adkins (personal communication, January 11, 2010) responded: Vacant, I would use the Federal Housing of Urban Development (HUD) definition which is simply a building that is not currently occupied and being used, this can be a temporary situation, less than 90 days. Again we (Community Revitalization Department) use the HUD definition of any property that has been unoccupied and vacant for 90 days or more. Mr. Dominy (personal communication, January 8, 2010) responded: An abandoned building would be one where there is no owner or occupant and no one is keeping it up and it is deteriorating. A vacant and unoccupied building may be abandoned but could be a viable structure simply waiting on a tenant. Mr. Trick (personal communication, January 14, 2010) responded: A building that no one is living in or working in and the owner is not taking care of is abandoned. Ms. Motley (personal communication, January 14, 2010) responded: Anywhere there is no habitation or maintenance of those facilities (Appendix E Personal Communications).

The terms abandoned, vacant and unoccupied buildings have very important meanings and distinctions. However this research has proven that is not always understood.

The second research question asked what is the fire danger associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? Literature review in this area provided that these buildings are often the source of arson fires set by various individuals for various reasons; homeless persons trying to keep warm, vandals to commit property are but two examples (Kidd, 1995; Loeb, 1993; Eisner, 2000). Often fire in these buildings can go undetected for some time, allowing extensive property damage and for the fire to grow to significant size before first responders are notified and can begin mitigation (Jones, 2001). These buildings are not only the source of fire but extend damage from one building to another and eventually down the block and through the neighborhood (Dunn, 2000).

These building and their fires cause significant numbers of injuries and deaths for the general population and the first responder (Eisner, 2000; Fahy et al., 2007; NIOSH, 2009). They also are the source of significant property loss (Joyce, 1993). These buildings and their fires begin a cycle; one perpetuating the other (Jennings, 1996). A successful strategy to address the fire danger of these buildings is to identify them early before the cycle has momentum (Jones and White, 2001; O'conner and Sauerteig, 1980).

A survey instrument used two survey questions to better answer this research question. Survey question four stated that abandoned, vacant and unoccupied buildings pose significant fire hazard in Middletown, Ohio. The two most popular responses were strongly agree 45.7% and agree 38.3% for a total of 84%. Survey question seven asked the respondent to rank fire hazards, health risk and criminal potential as areas of concern for these buildings. Fire hazards were ranked as second with a response of 40.3% (Appendix D Survey Results).

Assisting in answering this question personal interviews were used. Personal interview question number three asked what is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? Mr. VanArsdale (personal communication, January 8, 2010); Ms. Phillips (personal communication, January 8, 2010); Mr. Adkins (personal communication, January 11, 2010); Ms. Motley (personal communication, January 14, 2010) did not respond to this question in regards to fire danger. Ms. Scott-Jones (personal communication, January 11, 2010) responded: These buildings become locations for illegal activity, such as smoking drugs that can become a fire hazard while becoming a health issue as these folks take up residence in a transient manner. Mr. Dominy (personal communication, January 8, 2010) responded: They present with an increased threat to life safety as they are very dangerous buildings. We have seen an up-tick in our emergency calls and these building seem to be a part of that. Just this winter, in the last month and a half we have had two serious fires in abandoned buildings. The cause we believe was homeless trying

to stay warm or vandals. Mr. Trick (personal communication, January 14, 2010) responded: I would rate criminal potential as the greatest concern, next would be fire, fire and health are real but for me and the business community the real issue with these buildings is the criminal activity they invite and attract (Appendix E Personal Communications).

This research has supported that fire danger is associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. It has also demonstrated the key stakeholders in Middletown, Ohio recognize this ahead of health risk and behind criminal potential.

The third research question asked what is the health risk associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? Literature review offered these buildings are a source of injury and disease (Shai, 2006). Subject matter experts charge there is a direct connection to these buildings and poison, asthma, drug and cardiovascular disease (Shai, 2006; Bashir, 2002; Augustin et al., 2008). Some subject matter experts accept these buildings are sources of injuries and poisonous materials such as lead and mold but question the validity of the research connecting these buildings with something more such as cardiovascular disease (McDaniel et al., 2009). While other subject matter experts do not stop at questioning the research methods, they outright question the connection to these buildings and disease (Jacobs et al., 2009).

The survey instrument used two survey questions to better answer this research question. Survey question five stated that abandoned, vacant and unoccupied buildings pose significant health risk in Middletown, Ohio. The two most popular responses were agree 51.9% and strongly agree 33.3% for a total of 85.2%. Survey question seven asked the respondent to rank fire hazards, health risk and criminal potential as areas of concern for these buildings. Health risk was ranked as third with a response of 15.8% (Appendix D Survey Results).

In answering this research question personal interviews provided the following by asking personal interview question number three, what is the (fire danger, health risk, criminal potential) of

abandoned, vacant and unoccupied buildings in Middletown, Ohio? Mr. VanArsdale (personal communication, January 8, 2010); Mr. Adkins (personal communication, January 11, 2010); Mr. Dominy (personal communication, January 8, 2010); Ms. Motley (personal communication, January 14, 2010); did not respond to this question in regards to health risk. Ms. Phillips (personal communication, January 8, 2010) responded: Uncared for swimming pools become stagnant and a breeding ground for disease, the interiors can become unkempt as homeless squat and this can become disease oriented. Ms. Scott-Jones (personal communication, January 11, 2010) responded: These buildings become locations for illegal activity, such as smoking drugs that can become a fire hazard while becoming a health issue as these folks take up residence in a transient manner. Mr. Trick (personal communication, January 14, 2010) responded: I would rate criminal potential as the greatest concern, next would be fire, fire and health are real but for me and the business community the real issue with these buildings is the criminal activity they invite and attract (Appendix E Personal Communications).

This research has supported that health risk is associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. It has also demonstrated the key stakeholders in Middletown, Ohio recognize this but do so as the last of concerns behind criminal potential and fire danger.

The fourth research question asked what is the criminal potential associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio? Literature review suggested that as the occupant moves out the criminal moves in with the intent of illegal alcohol and drug use, theft and unlawful occupation (Ehrhart, 2009; Kidd, 1995). These buildings and their problems, drug dealing, prostitution, and theft, can develop into a major public safety concern for some of the largest cities in the United States (NVPC, 2009). Allowed to exist they can transform a healthy community into one of social disorder (Wilson and Kelling, 1982). Abandoned, vacant and unoccupied buildings at times have

been incorrectly identified as a symptom of crime when in actuality, if allowed to flourish cause it (Accordino and Johnson, 2000).

. The survey instrument used two survey questions to better answer this research question. Survey question six stated that abandoned, vacant and unoccupied buildings pose significant criminal potential in Middletown, Ohio. The two most popular responses were 51.9% strongly agree and agree 38.9% for a total of 90.8%. Survey question seven asked the respondent to rank fire hazards, health risk and criminal potential as areas of concern for these buildings. Criminal potential was ranked first with a response 43.9% (Appendix D Survey Results).

In answering this research question personal interviews provided the following by asking personal interview question number three, what is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? Ms. Phillips (personal communication, January 8, 2010) and Mr. Dominy (personal communication, January 8, 2010) did not respond to this question in regards to criminal potential. Mr. VanArsdale (personal communication, January 8, 2010) responded: As the buildings are gutted and stripped of property by theft they cause a drain on police services. Vandalism and prostitution, recently, in the last couple months we had a rape that occurred where a couple males abducted a female, drug her into an abandoned building and raped her. Ms. Scott-Jones (personal communication, January 11, 2010) responded: These buildings become locations for illegal activity, such as smoking drugs that can become a fire hazard while becoming a health issue as these folks take up residence in a transient manner. Mr. Adkins (personal communication, January 11, 2010) responded: Vandalism as well as theft of parts of the structure: light fixtures, copper piping and wiring, even windows. Some costs and consequences are not obvious, trash left, animal infestation; securing the building may cost the city \$4,000. Mr. Trick (personal communication, January 14, 2010) responded: I would rate criminal potential as the greatest concern, next would be fire, fire and health are real but for me and the business community the real issue with

these buildings is the criminal activity they invite and attract. Ms. Motley (personal communication, January 14, 2010) responded: More than anything the criminal potential. I think criminals are looking for these kinds of buildings to have an opportunity to commit crime and do harm (Appendix E Personal Communications).

This research has supported that criminal potential is associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. It has also demonstrated the key stakeholders in Middletown, Ohio recognize this as the number one area of concern ahead of fire danger and health risk.

In summary, through the process of descriptive research, involving literature review, a survey instrument and personal interviews, it has been determined that current information, attitudes and opinions support a community risk reduction effort concerning the hazards associated with abandoned, vacant and unoccupied buildings, in Middletown, Ohio. First this effort should begin with clear communication establishing what is an abandoned, vacant and unoccupied building. Second this effort should address the hazards associated with these buildings in the following order: criminal potential, fire danger and health risk.

## DISCUSSION

This research was done in an effort to analyze the problem of abandoned, vacant and unoccupied buildings in Middletown, Ohio. In a systematic fashion the areas of terminology and associated hazards were examined.

The terms abandoned, vacant and unoccupied buildings were found to have varying definitions throughout this research project. Sometimes the differences existed concerning the element of time. Pressler (1996) described a vacant building as “structures that have been unoccupied for years” (p. 42). This conflicted with Scanlon (2000) who wrote a vacant buildings is a building that is temporarily without occupants. Other differences of opinion were along safety concerns. O’Conner (2005) charged

vacant buildings are “empty buildings” whereas abandoned buildings are “not just a structure that looks empty but one that is truly unsafe” (p. 85). Dunn (2000) disagreed explaining the vacant building is the most dangerous building a firefighter will encounter. Though these difference were discovered common elements and understandings were also found. The terms abandoned, vacant and unoccupied buildings often were used to describe structures and associated hazards that could do great harm to people, neighborhoods and communities (Culhane et al., 2003 and Wilson and Keeling, 1982).

The process of research in this area has caused this author to believe these terms and the buildings they describe do have distinct differences as well as common issues. To effectively deal with these buildings and their specific hazards in the form of a community risk reduction effort it is essential to first begin with a solid understanding of what buildings are being targeted, what hazards they individually and collectively present and then strategically decide with key stakeholders how to approach them and in what priority order.

The fire danger associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio was found to be significant. These buildings often incur fires either as a criminal act or by accident (Eisner, 2000 and Kidd, 1995). Mr. Dominy (personal communication, January 8, 2010 ) stated just this winter, in the last month and a half we have had two serious fires in abandoned buildings. The cause we believe was homeless trying to stay warm or vandals. The annual loss of life and property from these buildings is staggering (Joyce, 1993 and Fahy et al., 2007 and NIOSH, n.d.).

Subject matter experts go beyond causing this author to accept these buildings pose fire danger in Middletown, Ohio. They provided detail as to how large and complex these buildings and their issues are. This information will be valuable to this author or any other EFO who leads a community risk reduction effort on the fire danger associated with abandoned, vacant and unoccupied buildings.

The health risk associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio was interesting and controversial. These buildings often contain poisons such as lead and mold

(Shai, 2006 and Bashir, 2002) while also inviting injuries and drug use (Jones, 2001 and Kidd, 1995). Controversial was the allegation these buildings could cause a neighborhood to become sick, evidenced by higher than average incidence of cardiovascular disease (Augustin et al., 2008). This was not accepted by all experts (McDaniel et al., 2009) who questioned the research methods and others (Jacobs et al., 2009) who doubted the connection whatsoever. Ms. Phillips (personal communication, January 8, 2010) stated, uncared for swimming pools becomes stagnant and a breeding ground for disease, the interiors can become unkempt as homeless squat and this can become disease oriented. Locally recognized as a health concern, 85.2% survey respondents selected agree or strongly agree when asked if these buildings pose a health risk, yet they placed it last as a priority behind criminal potential and fire danger (Appendix D Survey Results).

Research results in the area of health risk associated with these buildings were not only controversial but surprising to this author. The fact these buildings could be sources of poison and other harmful substances though expected needed to be validated. Validation of that fact occurred while more health risks were discovered, though not as tangibly seen and/or as widely accepted. The possibility exists that health risk associated with these buildings may reach beyond the dilapidated structure and into the neighborhood in the form of higher incidence of stress related illness and/or other disease such as encephalitis or West Nile.

The criminal potential associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio was found to be real and consequential. Studies in Richmond, VA and Austin, TX had identified a correlation between these buildings and alarming crime rates (NVPC, 2009). Mr. VanArsdale (personal communication, January 8, 2010) stated the buildings are gutted and stripped of property by theft, they cause a drain on police services. Vandalism and prostitution, recently, in the last couple months we had a rape that occurred where a couple males abducted a female, drug her into an abandoned building and raped her. Reducing community risk in this area was supported locally, as seen

by 90.8% selecting strongly agree or agree when asked if these building pose criminal potential, and ranked first in priority ahead of fire danger and health risk with 43.9% (Appendix D Survey Results).

The results of this project in the area of criminal potential were startling. It was expected crime could and/or would be associated with these buildings but needed to be validated. It was validated and in doing so showed just how extreme the connection is between these buildings and crime, to such a degree they have become understood as a symbol for the decay of social order and community cohesiveness.

From an organizational standpoint this research has indicated that a community risk reduction effort designed to address the fire danger, health risk and criminal potential of abandoned, vacant and unoccupied buildings in Middletown, Ohio is warranted. The literature review, survey results and personal interviews have provided substantial information that not always agreed but in the end proved that to accept this charge would substantially improve the overall quality of life for the community, first responder and resident. In doing so would increase organizational efficiency, working with others to get ahead of the cycle and deal with the problem directly rather than indirectly and alone responding to resulting emergencies.

## RECOMMENDATIONS

This research project was undertaken due to the fact MDF did not clearly understand the hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio, resulting in an ineffective use of resources and increased risk to first responders and the community. The purpose of this research was to collect data and conduct problem analysis of the multiple hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio.

This research project has succeeded in performing a substantial amount of data collection and careful problem analysis concerning the multiple hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. Resulting from this process is a much better understanding

of what these buildings and associated hazards present. To realize a greater degree of organizational effectiveness, ultimately resulting in reduced risk for the first responder and community this information must be disseminated and acted upon.

I recommend the information discovered and identified in this research project be shared with all key stakeholders: Middletown City Community Revitalization Department, Fire Department, Police Department, Health Department, City Council, neighborhood residents and businesspersons. As the first step in that process I recommend it be shared and educated to all members of MDF via staff meetings and the Training Bureau. I recommend once the information is shared within MDF the discussion begin among Administration, Operations, and Prevention/Training Bureaus to identify a MDF community risk reduction team. I recommend this team work with other key stakeholders to not only address problem buildings in Middletown, Ohio but to develop a Middletown Community Risk Reduction Coalition. As a means of ensuring this coalitions effectiveness I recommend an effective means of evaluating its efforts such as outcome measures identified in the EACRR curriculum.

This research project can serve not only to improve awareness about these buildings and their hazards but can also begin a cultural and operational paradigm shift for MDF and Middletown, Ohio. What needs to happen and what this author recommends is for MDF Firefighters and Fire Officers to not only accept that community risk reduction is part of their job description and MDF's mission but to realize it is an effective and necessary tool to make sure everyone goes home.

In conclusion, this applied research project has clearly identified the hazards associated with abandoned, vacant and unoccupied buildings in Middletown, Ohio. That said, as run volumes increase and budgets decrease it will take more than discovery it will take action to find a way to answer today's and tomorrow's alarms. I recommend MDF and future researchers act upon what has been discovered here while continuing to research in order to find better ways for the fire service to fulfill its oath, to save lives and protect property.

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## Appendix A

### 2007 Monthly Alarm Data

Month	Building Fires	Mobile Fires	Other Fires	Fire Loss	False Alarms	Service And Assist	Other	EMS	Total
January	14	3	2	\$160,900.00	27	40	72	594	752
February	8	1	1	\$143,500.00	37	50	47	514	658
March	16	4	6	\$176,700.00	18	42	60	565	711
April	4	5	9	\$118,500.00	29	47	42	548	684
May	13	6	11	\$1,288,700.00	35	47	54	592	758
June	6	3	25	\$134,300.00	24	46	63	563	730
July	5	6	17	\$30,300.00	33	45	57	624	787
August	8	4	19	\$38,900.00	30	34	46	547	688
September	5	6	21	\$158,450.00	37	35	50	556	710
October	5	2	6	\$106,300.00	22	45	55	549	684
December	8	4	2	\$160,500.00	26	32	65	565	702
Totals	92	44	119	\$2,517,050.00	318	463	611	6811	7864

### 2008 Monthly Alarm Data

Month	Building Fires	Mobile Fires	Other Fires	Fire Loss	False Alarms	Service And Assist	Other	EMS	Total
January	13	2	1	\$41,000.00	27	29	31	629	732
February	12	3	1	\$139,600.00	16	40	60	646	789
March	8	5	2	\$198,600.00	38	39	45	599	736
April	9	2	3	\$89,000.00	24	54	54	645	791
May	5	5	2	\$88,700.00	36	36	45	677	806
June	10	2	5	\$149,025.00	27	59	111	655	869
July	4	3	4	\$92,000.00	27	52	66	673	829
August	7	3	6	\$841,500.00	33	46	68	655	791
September	8	2	16	\$25,175.00	48	58	115	742	989
October	12	8	7	\$167,300.00	36	56	48	631	791
November	14	7	10	\$699,035.00	36	46	66	603	782
December	9	2	6	\$552,500.00	43	30	62	652	804
Totals	111	44	63	\$3,083,435.00	391	545	771	7807	9709

## 2009 Monthly Alarm Data

Month	Building Fires	Mobile Fires	Other Fires	Fire Loss	False Alarms	Service And Assist	Other	EMS	Total
January	11	2	2	\$180,535.00	39	34	59	650	797
February	8	5	3	\$146,500.00	28	49	68	543	707
March	16	5	15	\$76,000.00	25	52	50	677	840
April	9	7	5	\$154,500.00	25	56	50	680	832
May	5	1	6	\$82,020.00	29	51	46	646	784
June	4	3	7	\$14,000.00	36	53	46	709	858
July	12	4	9	\$213,000.00	26	68	52	659	830
August	6	8	4	\$83,810.00	41	55	36	728	870
September	11	7	4	\$225,050.00	30	44	38	674	808
October	6	1	3	\$2,049,000.00	32	52	35	722	851
November	7	1	5	\$361,500.00	18	64	32	650	777
December	8	2	3	\$155,500.00	22	35	39	640	749
Totals	103	46	66	\$3,741,415.00	351	613	551	7978	9703

## 2007 Vacant or Abandoned Building Fires

Incident Number	Incident Date	Building Status
0700968*000	2/9/2007	5 - Vacant and Secured
0701547*000	3/5/2007	6 - Vacant and unsecured
0701773*000	3/14/2007	5 - Vacant and Secured
0701850*000	3/18/2007	5 - Vacant and Secured
0703050*000	5/7/2007	4 - Under major renovation
0703064*000	5/8/2007	7 - Being demolished
0703145*000	5/12/2007	6 - Vacant and unsecured
0703617*000	5/31/2007	7 - Being demolished
0704047*001	6/17/2007	5 - Vacant and Secured
0704059*000	6/17/2007	3 - Idle, not routinely used
0704632*000	7/9/2007	5 - Vacant and Secured
0707188*000	10/23/2007	5 - Vacant and Secured
0707557*000	11/7/2007	6 - Vacant and unsecured
0708015*000	11/26/2007	3 - Idle, not routinely used

Total Fires 14

### 2008 Vacant or Abandoned Building Fires

Incident Number	Incident Date	Building Status
0801260*000	2/19/2008	3 - Idle, not routinely used
0801873*000	3/14/2008	5 - Vacant and Secured
0803446*000	5/12/2008	6 - Vacant and unsecured
0804421*000	6/14/2008	3 - Idle, not routinely used
0804513*000	6/18/2008	6 - Vacant and unsecured
0805595*000	7/26/2008	5 - Vacant and Secured
0808651*000	11/9/2008	3 - Idle, not routinely used
0808697*000	11/10/2008	6 - Vacant and unsecured
0808853*000	11/16/2008	5 - Vacant and Secured

Total Fires 9

### 2009 Vacant or Abandoned Building Fires

Incident Number	Incident Date	Building Status
0900084*000	1/3/2009	3 - Idle, not routinely used
0900934*000	2/4/2009	4 - Under major renovation
0901102*000	2/11/2009	6 - Vacant and unsecured
0901852*000	3/12/2009	6 - Vacant and unsecured
0901957*000	3/16/2009	4 - Under major renovation
0902150*000	3/23/2009	3 - Idle, not routinely used
0902150*001	3/23/2009	3 - Idle, not routinely used
0902828*000	4/16/2009	1 - Under Construction
0903034*000	4/24/2009	5 - Vacant and Secured
0903099*000	4/25/2009	3 - Idle, not routinely used
0904221*000	6/6/2009	3 - Idle, not routinely used
0904228*000	6/7/2009	3 - Idle, not routinely used
0905404*000	7/17/2009	5 - Vacant and Secured
0905434*000	7/18/2009	5 - Vacant and Secured
0906902*000	9/7/2009	5 - Vacant and Secured
0907088*000	9/13/2009	5 - Vacant and Secured
0907849*000	10/10/2009	3 - Idle, not routinely used
0909401*000	12/5/2009	5 - Vacant and Secured

Total Fires 18

Appendix B

Survey Cover Letter

January 4, 2010

Dear Sir or Ma'am:

I am currently enrolled in the Executive Fire Officer Program at the National Fire Academy. As part of that program I am conducting research on the subject of abandoned, vacant and unoccupied buildings in Middletown, Ohio. The purpose of this research is to collect data and conduct problem analysis on the subject to improve resource allocation, ultimately resulting in reduced risk to first responders and the community.

An important part of this research are your expert opinions. As such a survey has been created and made available through a web page (see details below).

The survey consists of just eleven questions and should only take two to three minutes. Please complete this survey by January 15, 2010. To access the web page and take the survey just click the enclosed link.

<http://www.surveymonkey.com/s/LK8C325>

For your information, all survey respondents will remain anonymous and their input will be kept confidential.

I thank you in advance for your assistance and promise to share the results of this survey and the applied research project.

Steve Botts

Fire Chief

Middletown Division of Fire

Middletown, Ohio

Appendix C

Survey Instrument

1. Please select one of the following that best describes your position within the City of Middletown, Ohio.
  - City employee (Community Revitalization Dept.)
  - Firefighter
  - Police Officer
  - Health Official
  - Political Official
  - Neighborhood resident
  - Businessperson / Merchant
  
2. The terms abandoned, vacant and unoccupied buildings are used interchangeably in Middletown, Ohio. Therefore a general approach to resolve the shared issues would be best for first responders and the community at large.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
  
3. The terms abandoned, vacant and unoccupied buildings are not used interchangeably in Middletown, Ohio. Therefore a specific approach to resolve the different issues would be best first responders and the community at large.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
  
4. Abandoned, vacant and unoccupied buildings pose significant fire hazards to Middletown, Ohio.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree

5. Abandoned, vacant and unoccupied buildings pose significant health risks to Middletown, Ohio.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
  
6. Abandoned, vacant and unoccupied buildings pose significant criminal potential to Middletown, Ohio.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
  
7. Please rate the following 1-3 indicating the most serious areas of concern related to vacant, abandoned and unoccupied buildings in Middletown, Ohio.(1 the most serious and three the least serious).
  - Fire hazards
  - Health risks
  - Criminal potential
  
8. Abandoned, vacant and unoccupied buildings serve as a significant indicators as to the wellbeing of a neighborhood and/or community.
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
  
9. Please rate the following 1-4 indicating those you think are most affected by problems associated with vacant, abandoned and unoccupied buildings in Middletown, Ohio. (1 the most affected and 4 the least affected).
  - Firefighters
  - Health Officials
  - Police Officers
  - Community at large

10. Who should be involved in reducing the fire hazards, health risks and criminal potential of abandoned, vacant and unoccupied buildings in Middletown, Ohio. (Please select all you believe apply).

- Community Revitalization Department
- Fire Department
- Health Department
- Police Department
- Political Officials
- Neighborhood residents
- Business community/ Merchants

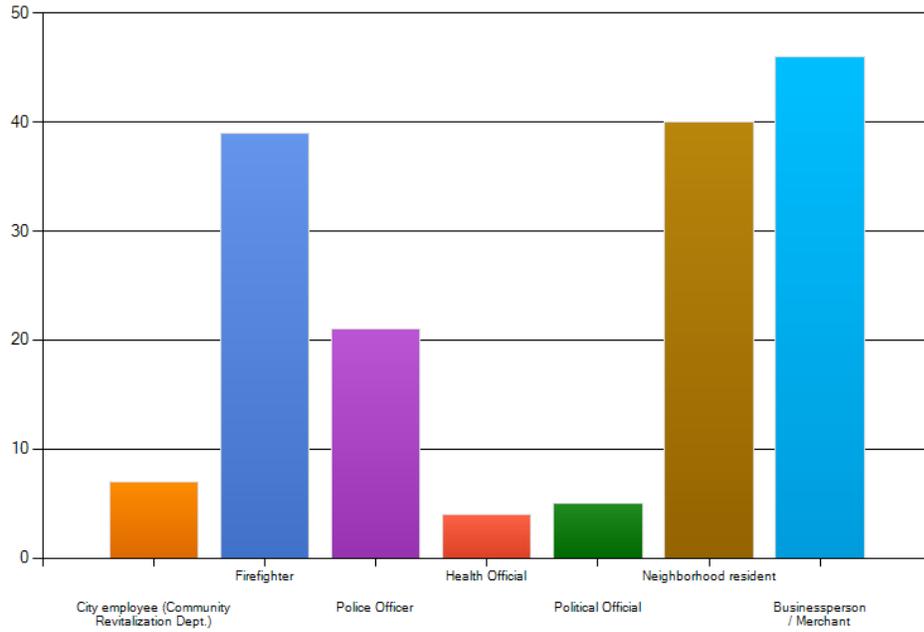
11. How many abandoned, vacant and unoccupied buildings do you believe are in Middletown, Ohio?

- Less than 500
- 501 - 1,000
- 1,001 - 2,000
- More than 2,001

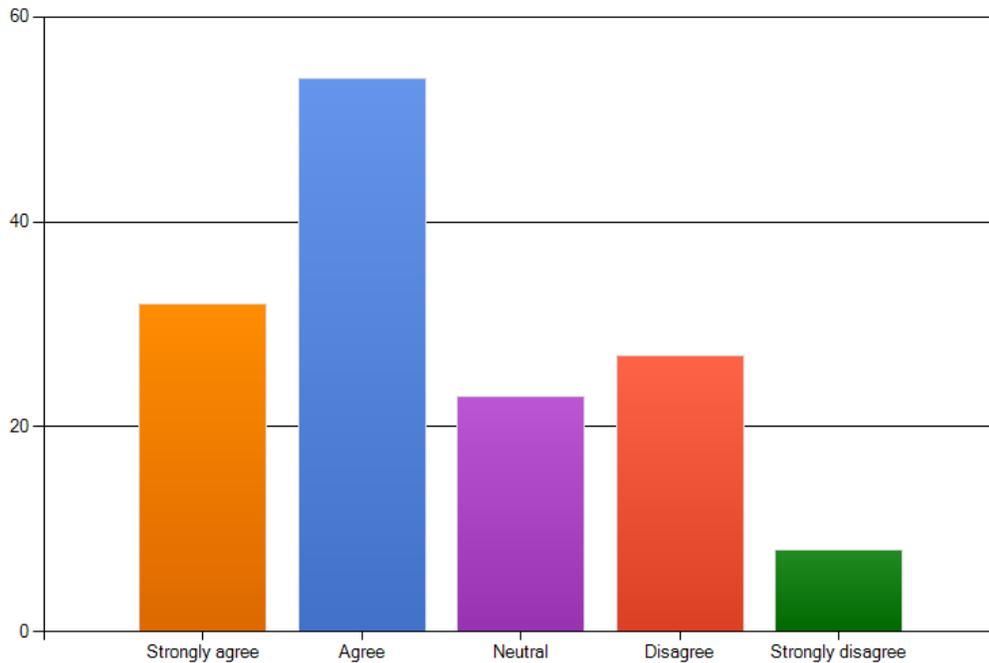
## Appendix D

### Survey Results

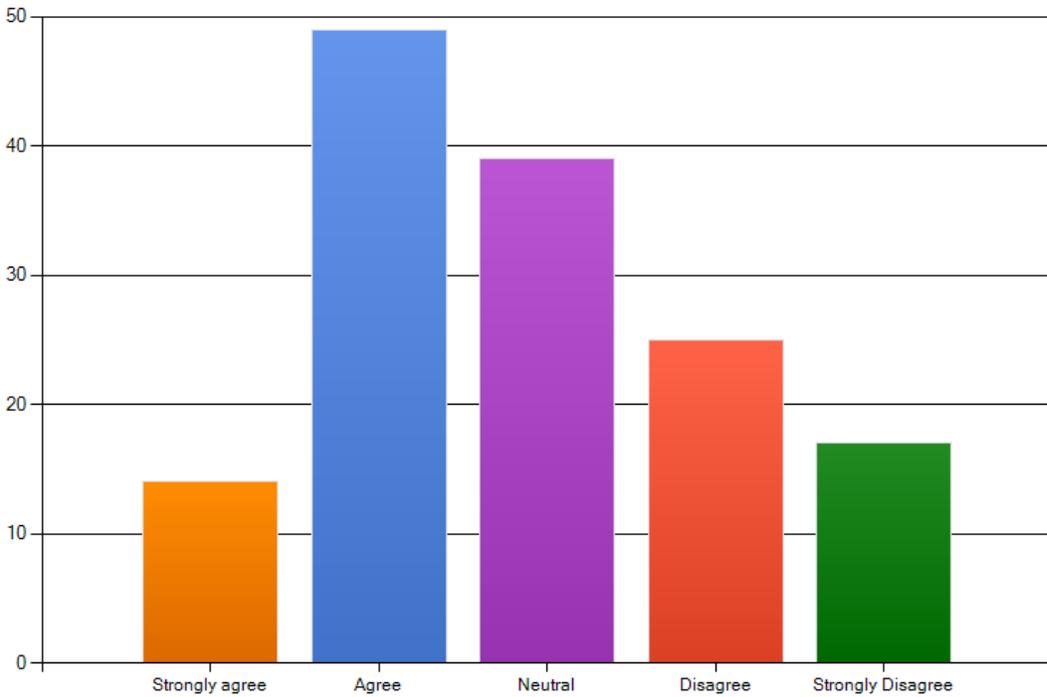
Please select one of the following that best describes your position within the city of Middletown, Ohio.



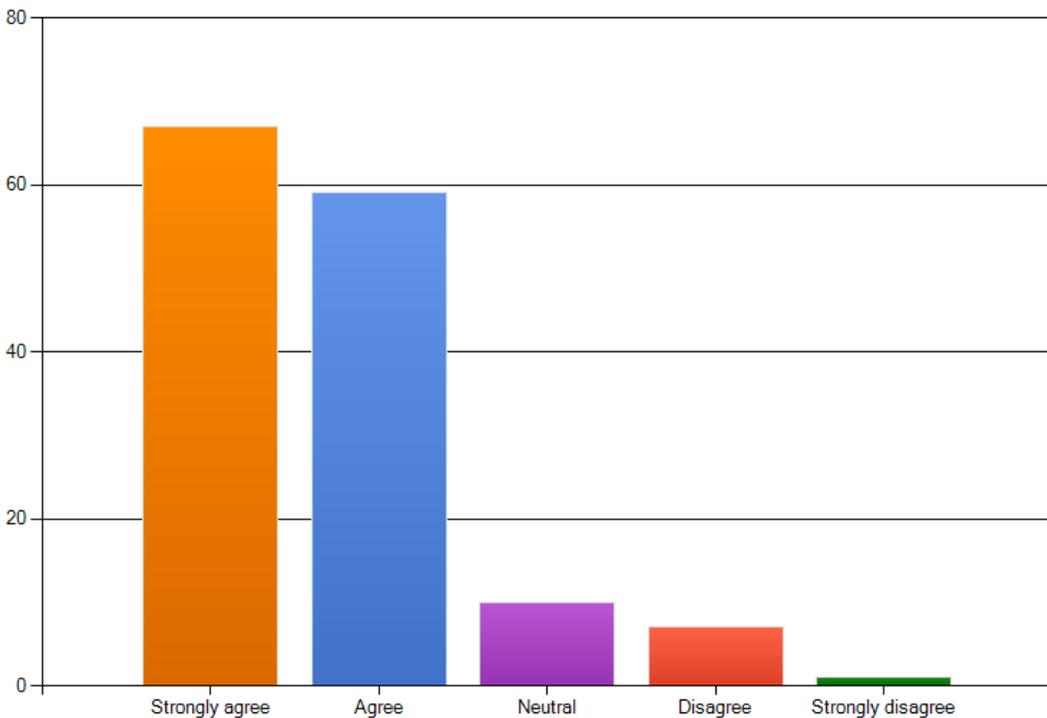
The terms abandoned, vacant and unoccupied buildings are used interchangeably in Middletown, Ohio. Therefore a general approach to resolve the shared issues would be best for first responders and the community at large.



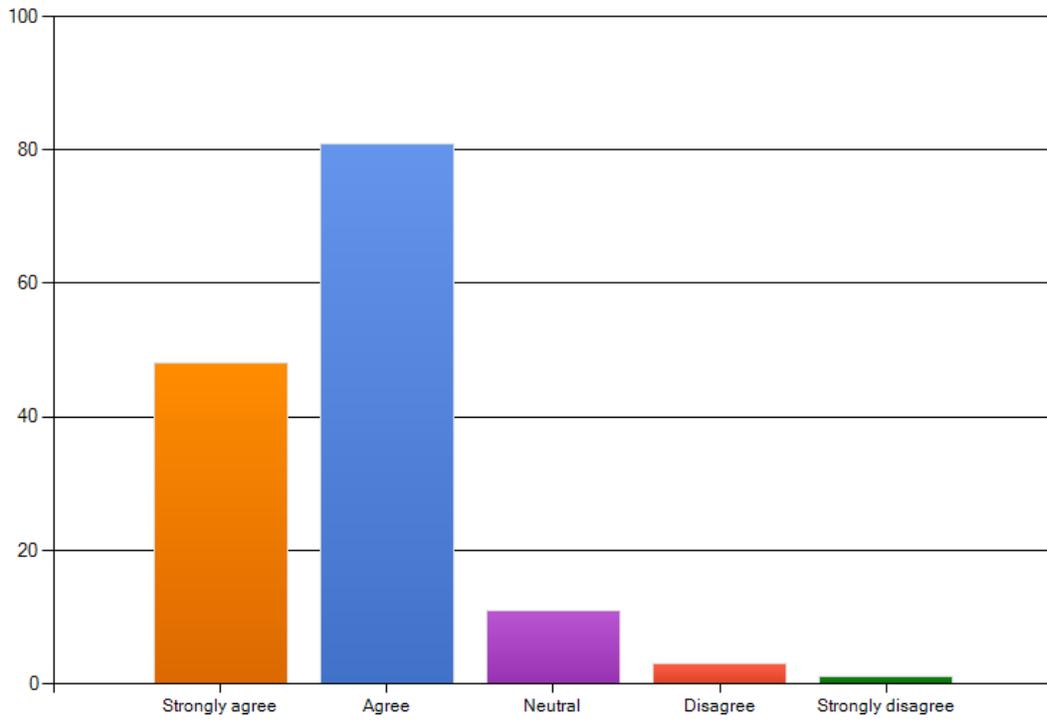
**The terms abandoned, vacant and unoccupied buildings are not used interchangeably in Middletown, Ohio. Therefore a specific approach to resolve the different issues would be best first responders and the community at large.**



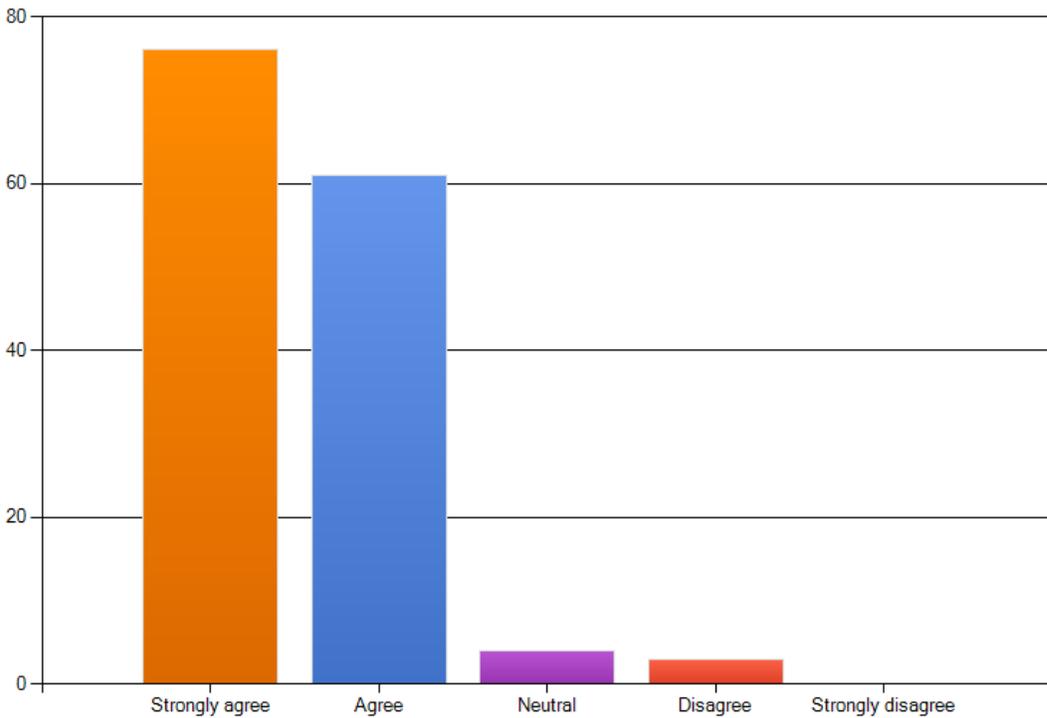
**Abandoned, vacant and unoccupied buildings pose significant fire hazards to Middletown, Ohio.**



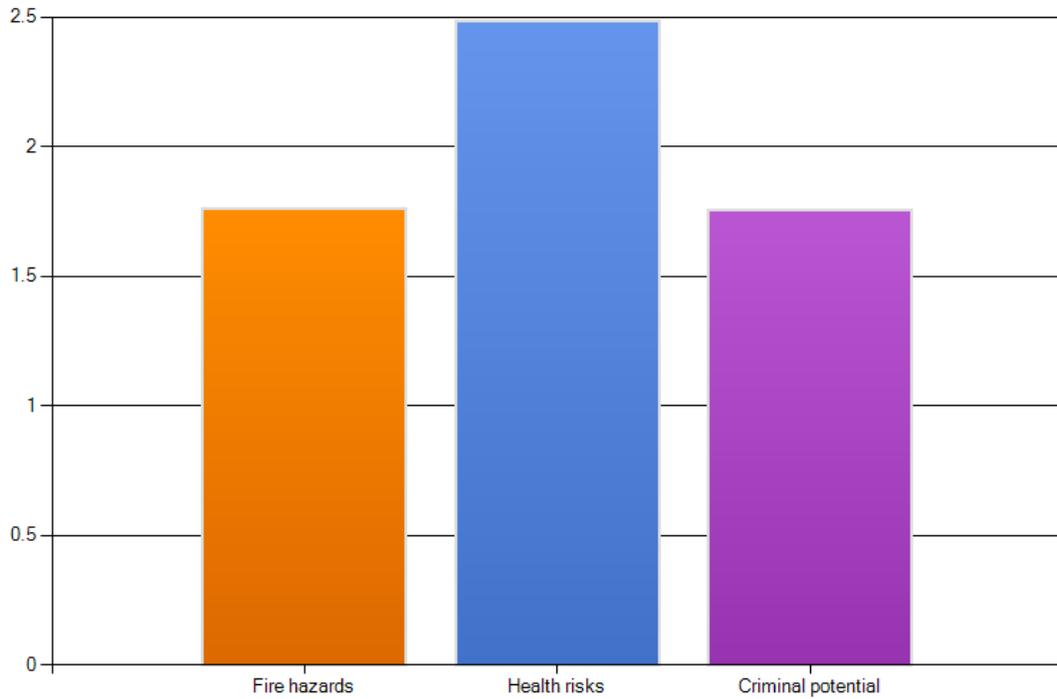
**Abandoned, vacant and unoccupied buildings pose significant health risks to Middletown, Ohio.**



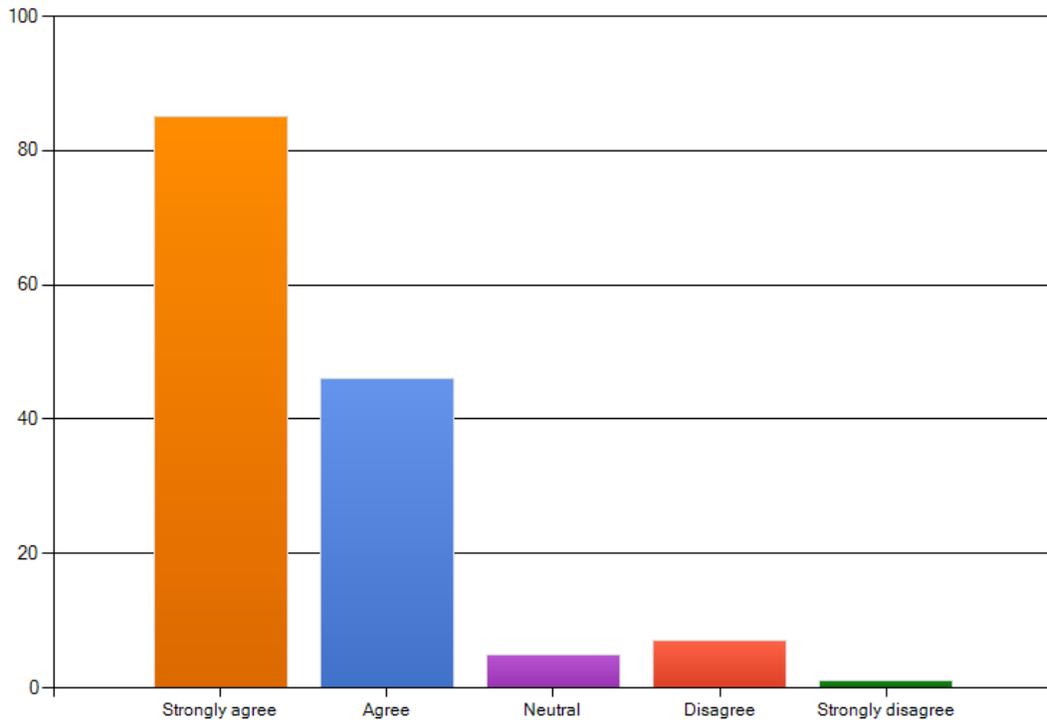
**Abandoned, vacant and unoccupied buildings pose significant criminal potential to Middletown, Ohio.**



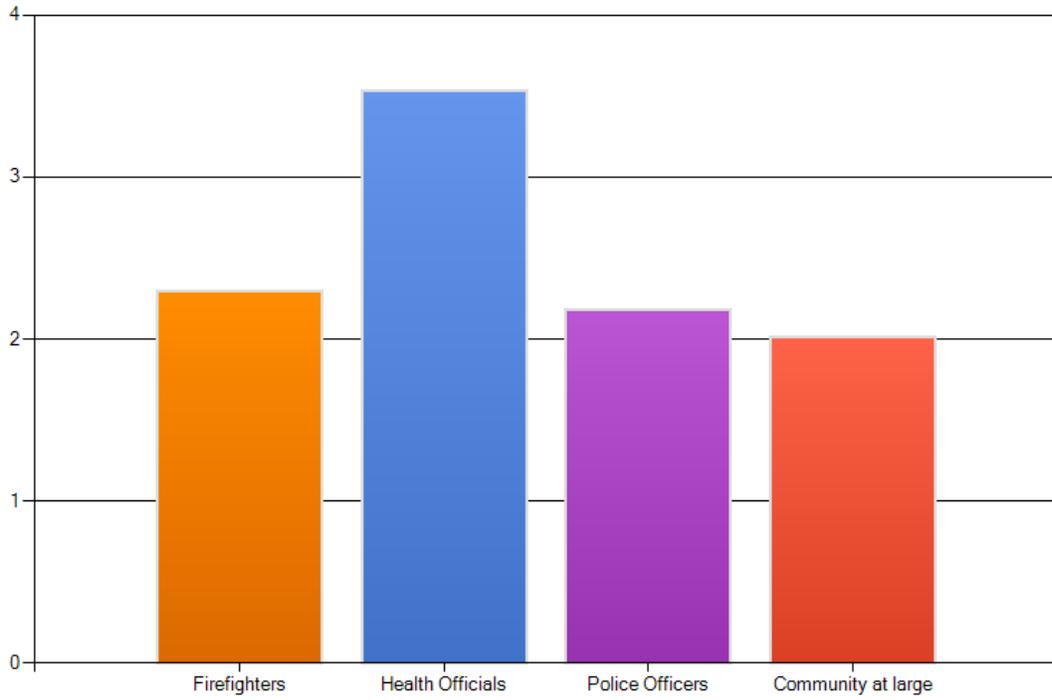
Please rate the following 1-3 indicating the most serious areas of concern related to vacant, abandoned and unoccupied buildings in Middletown, Ohio.(1 the most serious and three the least serious).



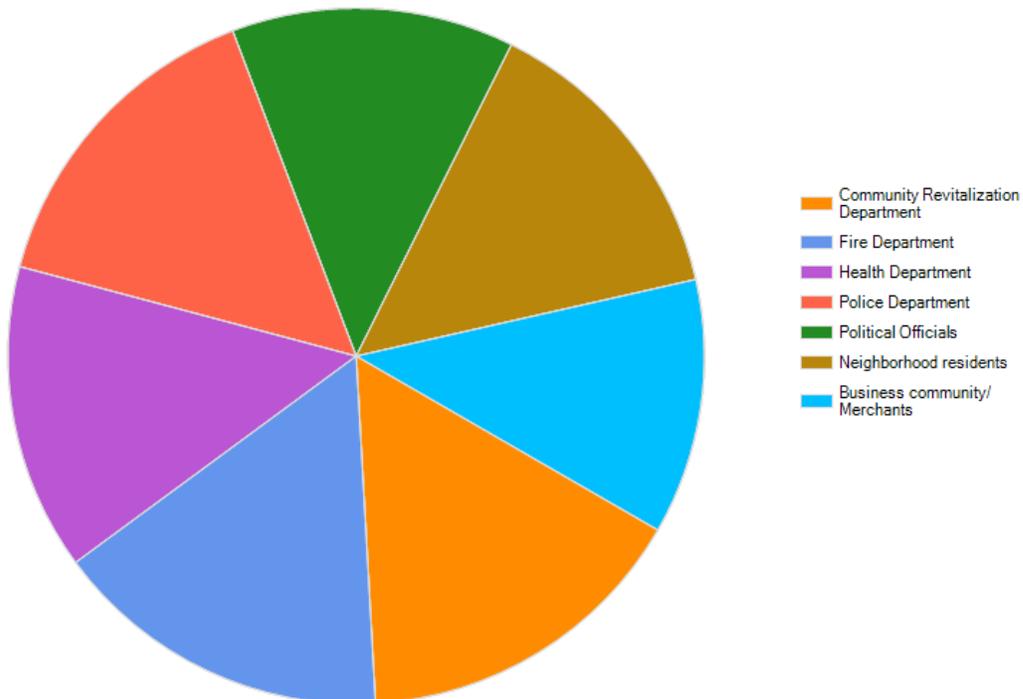
Abandoned, vacant and unoccupied buildings serve as a significant indicators as to the wellbeing of a neighborhood and/or community.



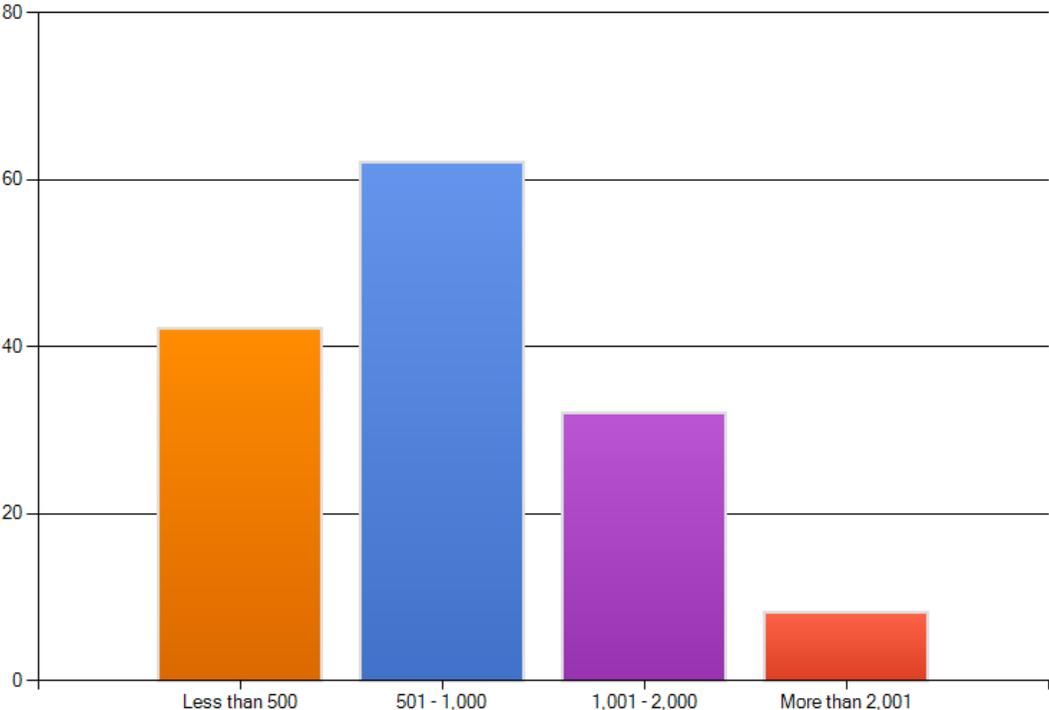
Please rate the following 1-4 indicating those you think are most affected by problems associated with vacant, abandoned and unoccupied buildings in Middletown, Ohio.(1 the most affected and 4 the least affected).



Who should be involved in reducing the fire hazards, health risks and criminal potential of abandoned, vacant and unoccupied buildings in Middletown, Ohio. (Please select all you believe apply).



How many abandoned, vacant and unoccupied buildings do you believe are in Middletown, Ohio?



Appendix E

Personal Communication

Interview with Mr. David VanArsdale, Middletown, Ohio

The interview took place on January 8, 2010 at his office at 1 Donham Plaza, Middletown, Ohio at 9:00 AM. The following is an account of the discussion with Mr. VanArsdale who holds rank of Major and supervises the Investigation Section for the Middletown Division of Police (MPD).

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio?

These buildings present a blighted landscape with broken windows, overgrown grass and general appearance that brings down property values, they invite homeless people as squatters, crime in general.

2. How do abandoned, vacant and unoccupied buildings affect the MDP? As these buildings run down and become a target for criminals they act as magnets for lawless behavior causing a drain on police resources.

3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? As the buildings are gutted and stripped of property by theft they cause a drain on police services. Vandalism and prostitution, recently, in the last couple months we had a rape that occurred where a couple males abducted a female, drug her into an abandoned building and raped her.

4. How would you define abandoned, vacant and unoccupied buildings? Vacant: useable, unoccupied building semi permanently without occupants. Abandoned: a vacant, unoccupied building that no one is taking care of any longer.

5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? Less than 500

Interview with Ms. Jackie Phillips, Middletown, Ohio

The interview took place on January 8, 2010 by phone at 10:00 AM. The following is an account of the discussion with Ms. Phillips who is a Registered Nurse, Director of Nursing for the Middletown City Health Department.

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio? Several ways, they become an eyesore...makes it difficult to market property and causes children and homeless to have dangerous opportunities.
2. How do abandoned, vacant and unoccupied buildings affect the Middletown City Health Department? It provides unsafe and unhealthy living that can cause disease and injury to individuals and/or a community oriented health problem.
3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings? Uncared for swimming pools becomes stagnant and a breeding ground for disease, the interiors can become unkempt as homeless squat and this can become disease oriented.
4. How do you define abandoned, vacant and unoccupied buildings? Vacant are empty buildings that are kept, abandoned are the opposite vacant buildings that are not kept.
5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? Since completing the survey with this question, I have been looking around as I drive through town and I would guess about 25% of the buildings are vacant.

Interview with Ms. Anita Scott-Jones, Middletown, Ohio

The interview took place on January 11, in the author's office at 2300 Roosevelt Blvd., Middletown, Ohio at 9:30 AM. The following is an account of the discussion with Ms. Jones who is a Council Person and holds the position of Vice Mayor for the City of Middletown, Ohio.

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio? Abandoned buildings cause a blight upon the city that effects the way outsiders view the city and how residents see the city.

2. How do abandoned, vacant and unoccupied buildings affect the Middletown City Council? Citizens complain to council because council is the path of least resistance and this begins a process where the councilmember becomes involved in the matter, often causing an investigation that may or may not verify the issue causing the complaint, this circumvents the chain of command and causes confusion and an inefficient use of resources.
3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? These buildings become locations for illegal activities, such as smoking drugs that can become a fire hazard while becoming a health issue as these folks take up residence in a transient manner.
4. How would you define abandoned, vacant and unoccupied buildings? Abandoned building would indicate the owner or tenant is no longer there, no longer taking care of the building and it is deteriorating.
5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? I am not certain on the number but based on the information given to council I would venture an estimate of 25%.

Interview with Mr. Doug Adkins, Middletown, Ohio

The interview took place on January 11, 2010 in his office at 1 Donham Plaza, Middletown, Ohio 1:00 PM. The following is an account of the discussion with Mr. Adkins who is the Department Director for the City of Middletown's Community Revitalization Department.

1. How do abandoned, vacant and unoccupied buildings affect the city of Middle, Ohio? The answer to that is layered, first financial, a loss of income and property taxes as well as loss of water revenues. Beyond that it brings down the value of that property and surrounding property. Also it affects the resident and the community how they view themselves and the city as a whole. There are opportunity costs as well as costs of perception. It is a drain on public safety and other governmental agencies.
2. How do abandoned, vacant and unoccupied buildings affect the Middletown Department of

Community Revitalization? It has been almost overwhelming as we try to respond to the immediate needs and work on strategic plans, we are currently working on a five year plan to meet the Federal Housing of Urban Development requirements to not only better manage these issues but to be eligible for resources such as grant dollars that can be applied to a solution. We have a process that in general is: assessment, decision to rehabilitate or demolish, and accessing resources either as a liaison or a direct receiver to improve the situation.

3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? Vandalism as well as theft of parts of the structure: light fixtures, copper piping and wiring, even windows. Some costs and consequences are not obvious, trash left, animal infestation; securing the building may cost the city \$4,000.

4. How would you define abandoned, vacant and unoccupied buildings? Vacant, I would use the Federal Housing of Urban Development (HUD) definition which is simply a building that is not currently occupied and being used, this can be a temporary situation, less than 90 days. Again we (Community Revitalization Department) use the HUD definition of any property that has been unoccupied and vacant for 90 days or more.

5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? The latest numbers we have, which has been incorporated into our five year plan, reports approximately 2,000 abandoned, vacant and unoccupied properties. That number can actually be broken down into about 1,000 abandoned and about 1,000 vacant and unoccupied. This is about 10% of our total housing stock of approximately 21, 357 and six percent higher than the Butler County's percentage.

#### Interview with Mr. Brent Dominy, Middletown, Ohio

The interview took place on January 8, 2010 by at his office at 2300 Roosevelt Blvd., Middletown, Ohio at 2:00 PM. The following is an account of the discussion with Mr. Dominy who holds the rank of Deputy Chief and serves as a Shift Commander for the Middletown Division of Fire

(MDF).

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio? It affects the property values, the way the residents view the city, it causes increase crime.
2. How do abandoned, vacant and unoccupied buildings affect the MDF? We, MFD have seen an increase of fires in these buildings in recent years. These fires are some of the most dangerous fires we fight. They often require a large commitment of resources and put us in a difficult place, in order to respond to other emergencies that may and do come in at the same time. Also, as these buildings seem to grow in greater number they tend to run our calls up and at the same time the city's budget is shrinking and that affects the division of fire.
3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? They present with an increased threat to life safety as they are very dangerous buildings. We have seen an up-tick in our emergency calls and these building seem to be a part of that. Just this winter, in the last month and a half we have had two serious fires in abandoned buildings. The cause we believe was homeless trying to stay warm or vandals.
4. How would you define abandoned, vacant and unoccupied buildings? An abandoned building would be one where there is no owner or occupant and no one is keeping it up and it is deteriorating. . A vacant and unoccupied building may be abandoned but could be a viable structure simply waiting on a tenant.
5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? Less than 500.

Interview with Mr. Bill Trick, Middletown, Ohio

The interview took place on January 14, 2010 by at his office at 1500 Central Ave., Middletown, Ohio at 11:00 AM. The following is an account of the discussion with Mr. Trick who is the President and Chief Executive Officer of The Chamber of Commerce Serving Middletown, Monroe and Trenton, Ohio.

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio? The greater proportion of these buildings in the community become an eyesore and exposes the community to risk, affecting business and ultimately the vitality of the community.
2. How do abandoned, vacant and unoccupied buildings affect the business community? If these buildings become vacant and abandoned and remain in that state it causes business to suffer, some to the point they will move away, it also makes it very unlikely to attract new business to Middletown. This problem cascades into other larger problems that we in the business community refer to as the concept of unintended consequences.
3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? I would rate criminal potential as the greatest concern, next would be fire, fire and health are real but for me and the business community the real issue with these buildings is the criminal activity they invite and attract.
4. How would you define abandoned, vacant and unoccupied buildings? A building that no one is living in or working in and the owner is not taking care of is abandoned.
5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? From the information I have read in the local paper, concerning foreclosures I would estimate over a thousand. In some areas such as downtown it would appear there are more buildings unused than used.

Interview with Ms. Vanessa Motley, Middletown, Ohio

The interview took place on January 14, 2010 at her home 4524 Shawnray Dr., Middletown, Ohio at 1:00 PM. The following is an account of the discussion with Ms. Motley who is a resident of the city of Middletown, Ohio.

1. How do abandoned, vacant and unoccupied buildings affect the city of Middletown, Ohio? It gives a negative perception of the city.
2. How do abandoned, vacant and unoccupied buildings affect the neighborhood of Middletown? It

affects the self image of the neighborhood. It causes homeowners to move away if they can and those who cannot, sometimes due to financial situations are trapped. As this continues it may appear to some people that the residents do not care but that really may not be the case they simply do not have the resources to make the positive changes.

3. What is the (fire danger, health risk, criminal potential) of abandoned, vacant and unoccupied buildings in Middletown, Ohio? More than anything the criminal potential. I think criminals are looking for these kinds of buildings to have an opportunity to commit crime and do harm.

4. How would you define abandoned, vacant and unoccupied buildings? Anywhere there is no habitation or maintenance of those facilities.

5. How many abandoned, vacant and unoccupied buildings are in Middletown, Ohio? I would probably say somewhere between 500 and 1,000.