

**ANALYSIS OF A PROSPECTIVE FIRE INVESTIGATION TASK FORCE
IN THURSTON COUNTY, WASHINGTON**

EXECUTIVE DEVELOPMENT

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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 the appropriate credit is given where I have used the language, ideas, expressions, or writings of others.

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ABSTRACT

The problem was a fire investigation task force was being considered for development without agency needs and components of a task force being identified.

Descriptive research was used to identify agency needs and components of a task force by answering the following questions: a) what is the current fire investigation capability of Thurston County fire and police agencies? b) how effectively are fire investigations currently being conducted within the county? c) what would be the fiscal impact of implementing a fire investigation task force? d) what are the components of an effective fire investigation task force?

Based on the findings, it was recommended that a task force be formed and various administrative and organizational components be implemented.

TABLE OF CONTENTS

Abstractpage 3

Table of Contentspage 4

Introductionpage 6

Background and Significancepage 7

Literature Reviewpage 11

Procedurespage 20

Resultspage 22

Discussionpage 32

Recommendationspage 35

Reference Listpage 37

List of Tables

Table 1 Agencies providing fire investigation services.....page 23

Table 2 Number of fire investigations conducted in 2004.....page 24

Table 3 Number of agencies using outside assistance for fire investigations in 2004.....page 24

Table 4 Level of fire investigation trainingpage 26

Table 5 Effectiveness of fire investigation programspage 27

Table 6 Fire investigation effectiveness without the use of outside assistance.....page 27

Table 7 Availability of external resourcespage 28

Table 8 Agency need for fire investigation trainingpage 30

Table 9 Willingness to participate in a fire investigation task force page 31

Appendices

Appendix A: Questionnaire cover letterpage 40

Appendix B: Fire investigation capability questionnairepage 41

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THURSTON COUNTY, WASHINGTON.

INTRODUCTION

Fire investigations and accurate origin and cause determination is fundamental to the protection of lives and property and is instrumental in preventing future fire incidents (National Fire Protection Agency [NFPA], 2001a).

Within the state of Washington, the Office of the State Fire Marshal, Fire Protection Bureau, provided fire investigation support to fire departments within the state. In July 2004, due to budgetary constraints, the State Fire Marshal's office eliminated this service, potentially leaving some Thurston County fire agencies without the basic capability of conducting origin and cause investigations and limiting external resources available to assist others with complex investigations such as large loss fires, fatalities and arson.

In an attempt to address the perceived void created by the elimination of the State Fire Marshal's fire investigation program, the Thurston County Fire Chief's Association is considering the development of a countywide fire investigation task force to enhance fire investigation service within Thurston County, WA. The problem is the actual need of the agencies and components of a successful fire investigation task force have not been identified.

The purpose of this research is to identify the need of the agencies and components of a successful fire investigation task force and to provide recommendations as to whether a task force should be formed and how it should be done if it is determined to be the best option for enhancing fire investigation service within Thurston County, WA.

The Descriptive Research Method was used to answer the following questions a) what is the current fire investigation capability of Thurston County Fire and Police agencies? b) how effectively are fire investigations currently being conducted within the county? c) what would be the fiscal impact of implementing a fire investigation task force? d) what are the necessary components of an effective fire investigation task force?

BACKGROUND AND SIGNIFICANCE

The incidence of fire is a horrendous problem within the United States. In 2004, a fire department responded to a fire somewhere in the nation every 20 seconds, a structure fire occurred every 60 seconds, a vehicle fire every 106 seconds and a fire in outside property occurred every 43 seconds. This equated to 1,550,500 fires of which 526,000 occurred in structures (NFPA, 2005). The human toll is even more sobering. An estimated 3,900 civilians died and 17,785 were injured in fires during 2004. A civilian fire death occurred nationwide every 135 minutes. These fires also resulted in a staggering \$9,794,000,000 in property damage. It is estimated that 36,500 intentionally set fires occurred during the year resulting in 320 civilian deaths (NFPA, 2005).

Unfortunately, the State of Washington and Thurston County are not immune from the calamity of fire. During 2004, 25,421 fires occurred in the state resulting in more than \$130 million in property/content loss and resulted in 55 civilian fire fatalities (Washington State Patrol, 2005a). Within Thurston County, 1085 fires were reported resulting in \$3,677.360 in property/content loss, injuring five civilians and resulting in two civilian deaths (Washington State Fire Marshal, 2005b).

Intentionally set fires are a serious nationwide problem. In Washington State, 1993 intentionally set fires were reported in 2004 resulting in nearly \$11 million dollars in damage

(Washington State Fire Marshal, 2005a). In Thurston County, 9.8% of the reported fires were determined to be intentional. These 46 intentional fires resulted in \$80,000 in damage. Also cause for concern is the 125 (26.65%) fires incidents listed as *Undetermined* or *Cause under investigation* (Washington State Fire Marshal, 2005b). The Fire Protection and Research Foundation (FPRF) suggests that a number of fires listed as Undetermined or Cause under investigation are actually incendiary in nature (FPRF, 2002). The NFPA currently estimates that only 2% of arson fires result in a conviction (NFPA, 2001b).

In addition to the direct property loss resulting from fire, it is believed that direct property loss represents only 10 percent of the incalculable cost of fire. Additional losses include business income, reduced property values, unemployment and a decrease in tax base. Personnel and equipment costs are also incurred while suppressing the fires and wildland fires destroy wildlife, watershed and timber which may be irreplaceable (DeHaan, 2002).

An effective fire investigation is instrumental in minimizing the terrible losses associated with fire. An accurate determination of cause can prevent accidental fires through the identification and elimination of hazardous products, processes, careless practices and the development of better building codes (DeHann, 2002). Fire investigation includes the discovery of arson and the prosecution of those responsible. It has been found that arson discoveries increase in areas where routine fire investigations are conducted. As investigators become more proficient, they provide law enforcement and fire marshals with information and usable evidence needed for successful prosecution. Consequently, arrests and convictions of arsonists increased and a reduction in the number of fires and loss of lives and property are reduced (Phillip & McFadden, 1996).

The firefighting community benefits through improved origin and cause determination from improved product safety and performance in fire which translates to improved firefighter safety (FPRF, 2002). NFPA 921, *Guide for Fire and Explosion Investigations* states that proper fire origin and cause determination is also essential for the meaningful compilation of fire statistics which form part of the basis for fire prevention codes, standards and training (NFPA, 2001a).

Fire Investigation services has long been a concern in Thurston County, Washington. Thurston County lies in the southern part of western Washington near the southern tip of Puget Sound. The county encompasses 737 square miles and is home to approximately 235,000 residents living in seven incorporated cities/ towns and unincorporated Thurston County. Citizens are protected by three city fire departments, fifteen fire districts and nine law enforcement agencies (Thurston Regional Planning, 2003).

Historically, fire investigations within Thurston County have been conducted through an informal sharing of local department resources with the final layer of expertise being provided by the State Fire Marshal's office who had fire investigators available to assist anywhere within the state upon request. In July 2004, the State Fire Marshal's office terminated fire investigation services in the state due to budget cuts.

Within the State of Washington, the statutory responsibility for fire investigations lies with county government. Revised Code of Washington (RCW) 48.48.060, places the responsibility for investigating the origin, cause, circumstances and extent of loss of all fires within unincorporated areas of a county to the county Fire Marshal, or other fire official so designated by the county legislative authority (RCW, 1995). While the Thurston County Board of Commissioners have acknowledged their statutory obligation to provide these services, budget

constraints have resulted in cuts in current services and made implementation of new programs impossible.

In February 2005, the Thurston County Fire Chief's Association established a subcommittee to address the perceived shortcomings in fire investigation services resulting from the termination of the State supported fire investigators and the inability of the County Commissioners to provide fire investigative services. The lack of available fire investigation resources is of particular concern to the author who also serves as Fire Chief of McLane Fire & Life Safety. The department currently has three National Fire Academy trained fire investigators that conduct internal fire investigations and also provide assistance to multiple departments within the county and most specifically the member departments of the West Thurston Consortium - four fire departments that protect a large portion of rural Thurston County, an area of nearly 247 square miles and home to 43,000 citizens. The current lack of external resources at times creates a significant workload for the department's investigators and provides little external support for major investigations or in situations in which a department investigator is unavailable.

This research project relates to several units of the Executive Development Course. The problem, or perceived lack of fire investigation resources is in essence a technical problem as described in the Leadership Unit of the course (Federal Emergency Management Agency [FEMA], 2004). However, for some agencies within the county that have not taken an active role in origin and cause determination, this problem presents an adaptive challenge as well. The development of a fire investigation task force or *team* also relates to the Teams Unit of the course. It is imperative that the establishment of a fire investigation task force utilize the basic concepts presented in the course material specifically those related to the development of an

effective team structure. Finally, this project also relates to the Change Management Unit and the APIE change model in which this research project represents the Analysis portion of that model (FEMA, 2004).

Fire is not discriminatory. It maims, kills and destroys property irrespective of socio economic status and race. As identified previously, effective and efficient fire investigations reduce the incidence of fire through the prevention of accidental fires and serves as a deterrent to incendiary fire through the discovery and prosecution of arsonists. A decline in fire incidents results in a corresponding reduction in the number of citizens injured and killed. Though many other factors are also involved, improved product safety and building codes brought about through effective fire investigations combined with a reduction in structure fire incidents creates a safer work environment for firefighters and is a positive step toward reducing firefighter fatalities. This project directly relates to these three USFA (FEMA, 2003) Operational Directives:

1. Reduce the loss of life from fire in the age group of 14 years old and below.
2. Reduce the loss of life from fire in the age group of 65 years old and above.
3. Reduce the loss of life from fire of firefighters.

LITERATURE REVIEW

A review of relevant literature confirmed the considerable benefits to be gained through accurate origin and cause determination and provided a wealth of information regarding the formation and components of a fire investigative task force.

Commonly identified benefits of an accurate origin and cause determination included: a) prevention of accidental fires, and b) reduction of incendiary fires, and c) reduction in the number of fires and loss of lives and property, and d) improved firefighter safety.

The United States Fire Administration highlighted the benefits to the community and to the participating investigators from the establishment of an Arson Strike Team.

“Communities can benefit because the team they can field when the need arises should be larger, more capable, and more effective. The team can draw from a larger pool of available investigators. The team offers a second advantage; greater collective knowledge of criminal activity and arson in the area. In turn, as investigators are called out to participate in more arson investigations, the individual’s experience base will broaden faster”(FEMA,1989a, p.4).

The report goes on to highlight the need for investigators to more frequently practice their skills in order to maintain proficiency and avoid skill degradation. In addition, by providing fire investigators more opportunities than they would receive in their home jurisdictions, overall capability is improved (FEMA, 1989a).

Additional benefits are realized through the formation of an investigative task force in effectiveness through the sharing of expertise and a reduction in the need to maintain redundant resources. Because task forces draw fire and police personnel, there is greater sharing of intelligence and the working team fosters closer working relationships between various agencies (State of Maryland, 1997).

Arson investigation task forces have proven their effectiveness throughout the country. In his report, Richard Strother (FEMA,1981) explains the first task force to be formed occurred in Washington State in 1975 with the establishment of the Seattle Arson Task Force. He explains that in 1973, Seattle had reached an all-time high \$3.2 million loss due to arson. This amounted to a major increase in loss from the nearly \$2.6 million in loss from arson fires from just two years earlier. The Seattle Task Force was formed with representation from fire, police,

the prosecuting attorney, insurance industry, government and local business representatives. The benefits of an arson task force were immediately felt with a reduction in loss returning to previous levels. In 1976, arson loss was down to \$1.6 million and at the time the report was written in 1981, had continued to decrease each year since then. Since those early days, arson task forces have seen similar success in communities such as San Francisco, New Haven, Phoenix and Alameda County, California (FEMA, 1981). Task forces have been proven to be so useful that the California District Attorneys Association (CDAA) reports that most of the counties in California currently have some form of an arson or fire investigation task force in place (CDAA, 1994).

Formation of a Fire Investigation Task Force

The formation and makeup of investigative task forces vary from jurisdiction to jurisdiction. The United States Fire Administration in its report, *Establishing an Arson Strike Force*, point to the need of differentiating between a policy setting body and an operational team of investigators. In order to alleviate confusion, the USFA uses the term *Arson Strike Team* when referring to the operational unit of investigators and the term *Arson Task Force* when referring to the policy setting body of the organization (FEMA, 1989a). To the contrary, in 1985 a fire investigation team was formed in Alameda County, California. One of the first actions of the group was to eliminate the word *Arson* from the team name due to the belief that the word arson insinuated that a crime had been committed and consequently drew undesirable citizen and media attention (Meehan & Fry, 1987).

The USFA (FEMA, 1989a) recommends the following steps be followed in the formation of a task force:

1. Identify the problem

2. Identify jurisdictions to be involved in the task force
3. Establish an Ad Hoc Study Team to review statistics, training, funding and personnel matters
4. Seek letters of support from interested agencies
5. Seek Prosecutors Advice and Participation
6. Develop Justification
7. Develop Organizational Structure
8. Determine Training/Orientation Needs
9. Evaluate Resource Needs
10. Evaluate Funding Needs and Expense Sharing Formulas
11. Draft Mutual Aid Agreement
12. Obtain Multi-jurisdictional Agreement
13. Complete Organizational Planning

While membership and the organizational structure of an arson task force vary greatly from jurisdiction to jurisdiction, the literature widely supports the combined use of police and fire investigators. Phillips and McFadden in *Investigating the Fireground* state,

“For best results, an investigation team should consist of at least one fire officer, an experienced firefighter, and a police officer (detective). The team should respond to fires as a unit. Firefighter members can concentrate on the fireground while police members question occupants and witnesses” (Phillips& McFadden, 1996, p. 7).

Administration and Management

Administrative and management needs must be addressed to support a fire investigation task force. While membership in a task force is usually comprised of representatives from multiple jurisdictions, one of the agencies usually assumes administrative responsibility (State of

Maryland 1997). Administrative duties include on-going tasks such as maintaining rosters and training records with additional administrative support provided when the task force is activated. These tasks include such things as insuring resource availability, managing extended investigations, media relations and computer support (FEMA, 1989a).

Call out Procedures

No established criteria could be found specifying requirements for the activation of a fire investigation task force to the scene of an incident. Rather, literature was supportive of the concept utilized by Alameda County that an investigative team could be summoned to any fire that was beyond the capabilities, expertise or manpower of the requesting jurisdiction (Meehan & Fry, 1987). Once it has been determined that fire investigation assistance was needed, the Incident Commander would then notify the team coordinator and would provide a briefing on the circumstances surrounding the request for activation. The coordinator would then travel to the scene to gather additional information or could activate needed team members based upon the information provided by the Incident Commander or on-scene fire investigator (FEMA, 1989a; Meehan & Fry, 1987).

Meehan and Fry (1987) also recommend that members not be used on consecutive investigations. This was based on the rationale that it would ensure that all members of the team would be used and no agency would be utilized more than another. The authors also supported making maximum use of daylight hours. They explained that there was no need for an investigative team to respond in the middle of the night simply to watch a fire burn – though they did recognize that there were a few exceptions to that rule.

Standard Operating Procedures/Scene Guidelines

Formal Standard Operating Procedures/Scene Guidelines should be established and

investigative personnel should be trained in their use and strict adherence to the standards should be maintained (State of Maryland, 1997). The USFA further recommends that the procedures spell out "...the purpose, objectives, duties and responsibilities, request and activation procedure, membership requirements, arrest policies, property/evidence handling, documentation requirements, training objectives, and safety and disciplinary rules" (FEMA, 1989a, pp. 18).

Criteria for Personnel Selection

Criteria should be established for the selection of team members. The USFA recommends criteria be developed in consultation with member agencies (FEMA, 1989a). In Alameda County, each participating agency provided a name of an interested member to a committee which in turn made the final selection. It should be noted, that Alameda County chose to only include those members working a 40-hour workweek, which was deemed easier for contact and use on the team (Meehan & Fry, 1987). It is also recommended that the District Attorney play an integrate role in the development and administration of a task force. According to the Insurance Committee for Arson Control, "the District Attorney should work closely with investigators from the fire and police departments, representatives from the state fire marshal's office and insurance company representatives. The advantage to this is that investigators can get answers to their questions about proper evidence as well as the appropriate legal advice in search and seizure and investigative procedures. At the same time, the district attorneys office becomes more familiar with the case being involved from the start" (Insurance Committee, 1987, p.3).

Training

According to the USFA, "finding the time and resources to ensure adequate training is available to members of the strike force is cited frequently as the glue that holds multi-

jurisdictional strike forces together” (FEMA, 1989a, p.27). The report goes on to cite the difficulties members face attempting to accommodate obligations outside the scope of their normal duties. In its report *Rural Arson Control*, the International Association of Fire Chiefs (IAFC) cite areas of study where improved skills were sought by investigators:

a) interrogation/interview technique, b) report writing, c) evidence collection, and d) legal issues (FEMA, 1989b). Phillips and McFadden also point to the need for a basic level for fire investigation training for all firefighters. The authors point out that firefighters occasionally destroy evidence simply because they do not recognize it as evidence. They suggest some form of training is needed to help avoid such occurrences and that the more training that firefighters receive, the more effective the fire investigation program will be (Philip & McFadden, 1996).

Financial Impact of Establishing an Fire Investigation Task Force

Both Meehan & Fry (1987) and the USFA (FEMA, 1989a) assert that the establishment of a fire investigation task force should not place a financial burden on any one jurisdiction as each agency supports its own representatives. In relating to the experience of developing a team in Alameda County, Meehan & Fry reported their only expense was the purchase of identifying coveralls, emblems and hard hats. “Funds for these were gained from donations by insurance companies, private insurance investigators and fire and police organizations. No city or county funds were solicited for the organization” (Meehan & Fry, 1987, p.48).

While the literature minimizes the fiscal impact associated with participation in a fire investigation task force, the author was successful in locating several current and future funding sources which could be useful in supporting on-going training and equipment needs.

On July 20th, 2005, members of the State of Washington, Fire Protection Policy Board met to discuss the States future role in fire investigations. As a result of the meeting, the Policy

Board established a committee to develop a strategy for the authorization and funding from existing resources the coordination and deployment of existing out-of-jurisdiction resources to perform origin and cause determination from a system modeled after the Washington State Fire Service Mobilization Plan which provides a mechanism for cost reimbursement (Fire Protection Policy Board, 2005).

According to Assistant State Fire Marshal Anjela Foster, the State of Washington provides \$30,000 in grant funding annually to each of its fire protection regions within the state to support training, life safety and investigation. Grant applications are due each June and are awarded the first of July. Thurston County agencies could request grant funding through the Region 2 Board (Foster, Personal Communication, August 22, 2005).

In addition, the author was also able to locate three corporate grant opportunities which may be useful as an external source of funding. Corporate grant opportunities are available from the following companies

- 1) Safeco Insurance Company provides quarterly grant opportunities specifically targeted towards loss-prevention programs for homeowner and safety/disaster programs (Safeco Insurance).
- 2) FM Global Insurance Company has an established arson grant program to assist fire departments and related agencies in reducing the incidence of arson (FM Global).
- 3) Green Diamond Resource Company offers a charitable contributions program. Support is generally a one-year commitment in amounts of \$10,000 or less in the Pacific Northwest (Green Diamond Resource).

Interlocal/Mutual Aid Agreement

The USFA recommends that a multi-jurisdictional system have a written agreement in place to reduce misunderstandings and provide guidance to all parties. The report also acknowledges that some teams have been organized under existing provisions of a Joint Powers Agreement, Mutual Aid Agreement or statutory provision authorizing automatic aid (FEMA, 1989a).

In March 2005, the author participated in the revision of the Thurston County Mutual Aid Agreement on behalf of the Thurston County Fire Chief's Association. In the document, language in the recital and definition sections were changed specifically to allow for the sharing of resources and technical expertise in non-emergent situations such as fire investigations (TCFCA, 2005). If a more formal interlocal agreement specific to a fire investigation task force is desired, model polices are available from both the Interfire web site and *Kirks Fire Investigation* which address areas such as response, commitment, operational policies, participation and financial obligations (FEMA, 1989a ; Interfire).

In summary, all of the sources point to the many benefits that can be derived from the establishment of a fire investigation task force. Practical application has found fire investigation teams to be very successful in many parts of the country to the extent that it has become commonplace in most counties within the State of California. Experts agree upon the necessary components of a successful fire investigation task force and claim little to no financial impact required to establish a team. Financial support for equipment and training is possible through corporate grant opportunities, and future personnel cost reimbursement is currently being explored by the Fire Protection Policy Board and the Washington State Fire Marshal's Office.

PROCEDURES

This applied research project utilized descriptive research methodology to gather information needed to identify the needs and capabilities of Thurston County agencies and to determine the fiscal impact and components of implementing an effective fire investigation task force.

The first step of this research began with a literature review which commenced in April 2005 at the National Fire Academy's (NFA) Learning Resource Center (LRC), while the author was in attendance at the academy for the *Executive Development Course – R123*. The LRC was chosen as the primary source for literary review due to its wide selection of fire related books, periodicals, reports and Applied Research Projects. The literary search at the LRC was focused primarily on reviewing documents related to fire investigations, arson task forces and fire loss statistics. Utilizing specific title searches for terms *Arson*, *Fire Investigation* and *Arson Task Force* yielded a multitude of books, periodicals, reports and two applied research projects that were subsequently reviewed for pertinence while present at the LRC.

A comprehensive Internet web search was conducted from the Google web site using key words *Arson* and *Arson Task Force*. Dozens of web sites related to arson and fire investigations were reviewed from both the public and private sector that provided valuable information regarding the components of an arson task force. Web sites from the United States Fire Administration (USFA), National Fire Protection Association (NFPA) and the US Census Bureau were consulted for statistics useful for this research. Information was also collected from the Washington State Legislature web site regarding the Revised Code of Washington (RCW) applicable to the investigation of fires.

The second step of the research involved the development of an Internet based questionnaire. The guidelines for developing a survey contained within the Executive Development Student Manual were consulted in the development of the instrument (FEMA, 2004). Based upon the information presented in the Executive Development manual, additional web research was conducted utilizing key word *Likert Scale* which produced several web sites that provided valuable insight into the development of the questionnaire. The questionnaire was then posted on the fire district's web server and an email invitation to complete the questionnaire was emailed to each police and fire agency within Thurston County (Appendix A). Follow-up phone calls were made to several agencies at the end of the two-week period to encourage their participation in the questionnaire.

As a result of the questionnaires, phone interviews were conducted with a representative from the Washington State Fire Marshal's office regarding possible future funding for a fire investigation task force and a representative from the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) regarding their agencies availability to assist local agencies with fire investigations. In addition, a phone interview was conducted with the City of Olympia Fire Marshal regarding the effectiveness of utilizing private insurance investigators for routine and complex fire investigations.

LIMITATIONS

Several limitations existed in this research project. The six-month time limitation for completion of this applied research project did not allow the author the opportunity to include results of the Washington State Fire Protection Policy Board meeting in which the proposed establishment of a *state mobilization* type reimbursement structure would be discussed. The

decision from this meeting could have a significant impact on the availability of external resources for fire investigations in the future.

The historical fire data collected in the questionnaire is also a limitation of this study, as it does not validate whether the fire activity of 2004 is representative of previous year(s) fire activity. However, limiting the review of historical data to a single year was deemed by this author to likely result in the greatest rate of questionnaire returns by police and fire agencies due to the minimal level of effort required for submittal and would not significantly alter the findings of this applied research project.

An additional limitation of the questionnaire was its ability to actually measure the level of effectiveness of current programs in routine and complex (fatality, arson, large loss) fire investigations. The study was limited to measuring the perceived effectiveness of the programs from the perspective of the reporting agencies. Extensive further study beyond the scope and time limitations of this project would be needed to quantify the actual effectiveness of existing programs in areas such as accuracy of origin and cause determination, scene processing, evidence collection, case preparation and arson conviction rates etc.

The final limitation of this study was due to the very low questionnaire return rate by police agencies. With only two of the nine agencies reporting, meaningful results could not be derived from the data.

RESULTS

An Internet based questionnaire was utilized as a part of this applied research project. An invitation to complete the questionnaire was emailed to each of the nine police and eighteen fire agencies within Thurston County. The questionnaire, hosted on a web server, provided respondents with the option of completing a form fillable Adobe Acrobat™ pdf document through a web browser or by printing and then faxing the completed document back to the

author. Completed questionnaires were received from fifteen fire and two police agencies. The Internet questionnaire was designed to identify the need and capability of the agencies to assist in answering the following research questions: a) what is the current fire investigation capability of Thurston County Police and Fire Agencies? b) how effectively are fire investigations currently being conducted within the county? c) what would be the fiscal impact of implementing a fire investigation task force?

Question #1: What is the current fire investigation capability of Thurston County Police and Fire Agencies.

Table 1
Agencies Providing Fire Investigation Services

Agency Type	Yes	No
Fire	14	1
Police	1	1

Fourteen of the fire departments (93%) that answered the survey reported they conducted fire investigations within their own jurisdiction/district. Only one of the two law enforcement agencies reported that they provided fire investigative services. The questionnaire revealed that a large segment of the fire departments in the county provided at least some level of fire investigative services.

Fire District #8 reported they did not conduct fire investigations because it was not a statutory requirement of the department. One police agency reported that they only provide investigations after an initial determination of suspicious origin or arson was made by the fire department.

Table 2

Number of Fire Investigations Conducted in 2004

Agency Type	Number of Investigations
Fire	164
Police	18

164 fires were investigated by fire agencies during 2004. Law enforcement reported assisting fire departments on 18 of those fires. The Thurston County Sheriffs office stated they had received 29 reported Arson Fires. A detective investigated fifteen of these fires with four cases referred for charges.

Table 3

Number of Agencies using outside assistance
for fire investigations in 2004

Agency Type	Routine Investigations			Complex Investigations		
	Yes	No	Number of Investigations	Yes	No	Number of Investigations
Fire	3	13	9	16	0	6
Police	0	2		2	0	

Interestingly, the questionnaire revealed that most fire agencies have the capability to conduct routine fire investigations but none of the agencies reported the capability (or comfort level) of conducting complex investigations without the use of outside assistance.

Only three fire agencies (18%) reported using outside assistance to conduct routine fire investigations during 2004. FD1 reported that they have used FD2 and the State Fire Marshal in the past, but most recently have been using FD9 and FD11 for assistance. FD11 stated that prior to implementation of internal resources they were also assisted by FD9 and currently utilize the Department of Natural Resources (DNR) to conduct wildland fire investigations. The Thurston

County Sheriffs Office reported that fire departments conduct the initial investigations. Of the agencies providing assistance to other jurisdictions (FD2, FD9 and FD11), it was identified that these three fire agencies provided a total of eleven fire investigations for other agencies during the year.

Unfortunately, questionnaires were not received from FD16 and Bucoda. According to Janet Duncan of Thurston County Fire District 12, Bucoda and FD16 do not have fire investigation capability and FD12 has conducted fire investigations for both of the departments in the past. (Duncan, Personal Communication, July 2005). Unfortunately, both FD16 and Bucoda departments are extremely small rural all-volunteer fire departments. While an initial email was sent to both of these departments, attempts to contact department leadership by phone to encourage participation in this study were unsuccessful.

Only six complex fire investigations occurred in the county during 2004 that required the use of outside assistance. Commonly cited external resources used for the investigation of complex fires included the State Fire Marshal; The Bureau of Alcohol, Tobacco and Firearms (ATF); City of Olympia; State Crime Lab and Insurance Company Investigators.

The research reveals that there were fifteen instances in 2004 that agencies were in need of outside assistance to conduct either a routine or complex fire investigation. This amounted to less than 10% of the total number of fires investigated during the year.

Table 4

Level of Fire Investigation Training

Agency Type	Level of Training			
	Level I Awareness Level	Level II 40 hour Community College	Level III 80 hour National Fire Academy	Level IV Certified Fire Investigator
Fire	39	52	18	1
Police	1	0	1	2

The questionnaire revealed that within the county there are 40 individuals trained to awareness level; 52 members have received 40-hour community college training; 19 are National Fire Academy trained and three are certified fire investigators.

No direct correlation could be found between the number and level of training of investigators per agency and the agencies perception of program effectiveness as illustrated in Table 5.

Question #2: How effectively are fire investigations currently being conducted within the county?

The questionnaire was designed to determine the level of effectiveness of current programs in routine and complex (fatality, arson, large loss) fire investigations. As was identified in the limitations section, no attempt was made in this study to actually quantify the level of *effectiveness* of currently operating fire investigation programs. For the purposes of this study, the effectiveness being measured is actually the perceived effectiveness on behalf of the reporting agency.

Table 5

Effectiveness of Fire Investigation Programs

Agency Type	“My Agency has an effective fire investigation program”				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire		3		7	3
Police			2		

Seven of the reporting fire agencies (71%) reported they had effective fire investigation programs. The two police agencies were undecided. Only three fire agencies (21%) indicated they believed their agencies did not have an effective fire investigation program in place.

Table 6

Fire Investigation effectiveness without the use of outside assistance

Agency Type	“My Agency can effectively conduct fire investigations without the use of outside assistance”				
	Routine Fires				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire		1		10	3
Police			1	1	
	Complex Fires				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire	2	9	1	2	
Police		1	1		

Further validating results of Table 3, the research indicates that most fire agencies believe they have effective fire investigation programs for the investigation of routine fires. Thirteen fire agencies (92%) reported they had effective programs for routine fires while only one fire agency

believe they did not have an effective program. One police agency reported they had an effective program and the other reporting police agency was undecided.

In contrast, only two fire agencies (14%) believed they had effective programs for the investigation of complex fires. Eleven fire agencies (78%) stated they felt their agencies did not have effective programs for complex fire investigations and one agency (7%) was undecided. One police agency reported they did not have an effective program for complex fires and one agency was undecided.

Comparing the results from Table 5 and Table 6 revealed that most fire agencies (71%) believed they had effective fire investigation programs even though most of the agencies (78%) needed assistance for the investigation of complex fire investigations and only 14% stated they had effective programs for the investigation of complex fires. These results clearly illustrate the need for reliable external resources for the investigation of complex fires within the county.

Table 7

Availability of external resources

Agency Type	“External resources are readily available to assist my agency with fire investigations”				
	Routine Fires				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire	1	5	1	7	
Police		1		1	
	Complex Fires				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire	1	1	3	6	3
Police				2	

Also identified in the survey was the perceived availability of external resources for assistance in investigating routine and complex fires. Only 50% of both police and fire agencies felt that external resources were readily available to assist their organizations with routine fires. Interestingly, nine of the fire agencies (64%) and 100% of the police agencies felt that external resources were readily available to assist with complex fire investigations.

While most agencies provided information regarding the agencies that had provided outside assistance, it would have been useful for the questionnaire to have specifically asked whether this assistance was provided for routine or complex fire investigations. Identified external resources for assistance included the State Fire Marshal, ATF and private insurance investigators and the State Crime Lab. With the recent elimination of the State Fire Marshal Fire Investigation Program, it cannot be determined whether this was known to the questionnaire respondents or whether the elimination of the State program would have influenced responses to this question.

To determine the availability of identified external resources, the author first contacted Diana Kenny from the Seattle office of the ATF. According to Diana, an investigator from ATF is available to assist local agencies with explosive incidents and arson fires involving abortion clinics, churches as well as private residences. She went on to relate that the Seattle office has only one certified fire investigator on staff. In the event that an investigator is needed, an agency must contact the duty agent who would in turn determine whether a response from the ATF is warranted (Kenny, personal communication, August 29, 2005). In regards to the use of private insurance company investigators, the author then contacted George Zieseemer, Fire Marshal of the Olympia Fire Department who related that private insurance investigators are an excellent resources but they generally have extended 24 to 48-hour response times which make them unsuitable as a primary external resource (Zieseemer, personal communication, August 29, 2005).

Question #2: What are the necessary components of a fire investigation task force?

Training is a single yet extremely important component of a successful fire investigation task force. As stated by the USFA, ensuring adequate training is available for strike force members is frequently cited as being a necessary component of holding a strike force together (FEMA, 1989a).

Recipients of the questionnaire were asked two questions to determine whether fire investigation training was needed within their organizations and whether they felt that training opportunities were readily available to department personnel (Table 8).

Table 8

Agency need for fire investigation training

Agency Type	“My Agency is in need of fire investigation training”				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire		3	1	6	4
Police				2	
Agency Type	“Fire investigation training is readily available for department personnel”				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire		4	8	2	
Police			2		

Ten fire agencies (71%) believed that fire investigation training was needed within their organizations. Both police agencies (100%) also agreed that training was needed. Three fire agencies (21%) reported they did not believe training was needed in their departments. No correlation could be drawn between the number and level of trained personnel within an agency and their response to needed training within their organization(s).

Only two fire agencies (14%) felt that training was readily available for their agencies while eight were undecided (57%) and four (28%) did not feel that training was readily available. Both reporting police agencies were undecided as to the question whether training was readily available for their departments.

The questionnaire established that additional fire investigation training is needed by most fire service agencies and whether it is provided through the efforts of a fire investigation task force, or through existing resources, the training must be coordinated and agencies must be made aware of available training opportunities.

The final question presented in the questionnaire was to determine whether agencies were actually interested in participating in a fire investigation task force. The rationale behind the questioning was simple, if agencies were not interested in participating a task force, then it did not serve as an option for improving fire investigation services within Thurston County.

Table 9

Willingness to participate in a Fire Investigation Task Force

Agency Type	“My Agency would be willing to participate in a fire investigation task force”				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Fire				7	8
Police			2		

100% of the fire agencies that participated in the questionnaire responded that they would participate in a fire investigation task force. Eight agencies (53%) were strongly in favor of participation in a task force. Both police agencies were undecided as to whether they would participate. The Thurston County Sheriffs Office commented that they could not justify the personnel and equipment to do initial fire investigation unless a fire was determined to be a crime.

DISCUSSION

The results of this research indicate that the establishment of a fire investigation task force is a viable, cost effective option for enhancing fire investigation service within Thurston County, WA.

The literature consistently highlighted the many benefits to be gained through effective origin and cause determination and clearly defined the components needed for an effective fire investigation task force.

Reports from the United States Fire Administration (FEMA,1989a), California District Attorneys Association (1994), and others advocate the need to conduct effective fire investigations in order to: a) prevent accidental fires, b) reduce the incidence of incendiary fires, c) reduce the number of fires and loss of lives and property, and d) improve firefighter safety.

Fire Statistics for Thurston County identified that during 2004, 9.8% of all reported fires were classified as intentional fires. An additional 125 fires (26.65%) were listed as *Undetermined* or *Cause under investigation*. The Fire Protection Research Foundation suggests that a number of fires listed as *Undetermined* or *Cause under investigation* are actually incendiary in nature. The report goes on to suggest that better origin and cause determination can be expected to triple the number of arson cases that could justify police investigation (FPRF, 2002). This research suggests that an improvement in the ability to conduct origin and cause determinations within the county will result in a corresponding increase in the number of identified incendiary fires – the first necessary step in reducing the incidence of arson.

Unfortunately, this research brings to question the likelihood of Thurston County developing a fire investigation task force comprised of both fire department and law enforcement personnel. The findings of Phillips and McFadden (1996), USFA (FEMA,1989a) and the

Insurance Committee for Arson Control (1987) all support the use of combined police/fire investigation task forces. While the literature leaves little doubt as to the superior effectiveness of a combined effort, with the exception of one law enforcement agency, a commitment from law enforcement to participate in a countywide effort could not be established by this research project.

The importance of strong administrative and management support of a fire investigation task force is consistently supported by the literature. This includes the development of procedures that establish "...the purpose, objectives, duties and responsibilities, request and activation procedures, membership requirements, arrest policies, property/evidence handling, documentation requirements, training objectives, and safety and disciplinary rules" (FEMA, 1989a, p18). The Insurance Committee for Arson Control further suggests that a task force cannot succeed without the support and cooperation of local government and its leadership (ICAC, 1987).

The questionnaire revealed that 100% of the reporting fire agencies are interested in participating in a fire investigation task force. This level of support combined with the current efforts being undertaken by the Thurston County Prosecutors Office reveals that the foundation of support exists for the formation of an effective fire investigation task force.

The research clearly establishes that training is a critical element of any effort being undertaken by the county to enhance fire investigation services. The USFA (FEMA,1989a) considers training to be the cohesive force that holds a task force together. The importance of training for investigators is supported in the report by the IAFC (FEMA,1989b) and by Philipps & McFadden who emphasized that the more training that firefighters receive the more effective the fire investigation program will be (Phillips & McFadden, 1996). The research identified that

additional fire investigation training was needed by most fire agencies (71%) within Thurston County and whether it is provided through the efforts of a fire investigation task force, or through existing resources, the training must be coordinated and agencies must be made aware of available training opportunities.

The capability of most Thurston County fire agencies (92%) to provide basic fire investigation was an unanticipated finding of this research project. In contrast, only 14% of the reporting agencies believed they could conduct complex fire investigations without outside assistance. The study identified that external resources such as ATF and Private Fire Investigators exist to assist with complex investigations, however, their availability and timeliness does not make them an attractive primary source for assistance. These findings clearly illustrate that the focus of any future coordination effort should be on developing the internal capability to conduct complex investigations within the county while providing support to those agencies in need of assistance for routine fire investigations.

The research indicates that the financial impact of establishing a fire investigation task force is minimal. However, external funding sources exist in the form of corporate grant opportunities and Washington State region grant funds that could be used by Thurston County agencies to support on-going training and equipment needs. Potentially the most promising resource for Thurston County is the fire investigation program currently under development by the State of Washington Fire Protection Policy Board, which may provide a mechanism for cost reimbursement.

To summarize, the organizational implications of this research are many. Through the implementation of a fire investigation task force, Thurston County agencies will benefit from the many improvements that can be derived from improved origin and cause determination.

Through enhanced training, the overall capability of county agencies will improve and the recognition and identification of incendiary fires will ultimately result in a reduction of arson related fires. The identification of potential corporate and state grant funding combined with current efforts underway at the state level, provide a pathway to acquire the “tools” needed to enhance fire investigation services within Thurston County.

RECOMMENDATIONS

The research presented in this study supports the implementation of a fire investigation task force to enhance fire investigation capability within Thurston County. Based on the literature review, telephone interviews and questionnaire results, the following action items are recommended:

1. A fire investigation task force should be formed with an emphasis towards enhancing capabilities for complex fire investigations while providing support to fire departments needing assistance in basic origin and cause determination.
2. An organizational structure should be developed for the task force. Comprehensive standard operating procedures should be developed that define duties and responsibilities, request and activation procedures, membership requirements, property/evidence handling and documentation requirements.
3. Task force members should be selected for the task force utilizing established qualification criteria.
4. Call out procedures should be identified which establish the criteria by which the task force may be requested and how task force members will be notified in the event of a recall.
5. A rotational activation schedule should be developed to ensure uniform use of task force members.

6. An operating budget should be established for the task force. While the research suggests that minimal funding will be needed, if equipment and training needs are identified, then financial support should be requested through corporate grant or Washington State Region 2 funding opportunities.
7. A comprehensive training program should be developed which includes enhanced training for task force members and basic origin and cause determination for line fire department personnel.
8. The Thurston County Association of Fire Chief's should be an active participant in the efforts currently being conducted by the Washington State Fire Protection Policy Board in the development of a fire investigation program that may include a cost reimbursement mechanism.
9. Further efforts should be undertaken to encourage participation from law enforcement agencies in a combined police/fire investigation task force.

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APPENDIX A

Questionnaire cover letter

(sent via email)

June 5, 2005

Dear Chief:

The Thurston County Fire Chief's Association is considering the development of a countywide Fire Investigation Task Force. As part of an ongoing effort by several police/fire agencies and the Thurston County Prosecutors Office to enhance fire investigation capability within the county, we are attempting to assess the fire investigation capabilities of police/fire agencies and to determine the wiliness of those agencies to participate in a fire investigation task force.

I have volunteered to conduct the necessary research as part of an Applied Research Project course requirement of the National Fire Academy, Executive Fire Officer program in which I am a student.

I respectfully ask your assistance in completing a Fire Investigation Capability questionnaire. The questionnaire should take less than ten minutes to complete and will provide us with crucial information.

The questionnaire can be accessed at <http://www.mclanefire.org/fireinvestigation.htm>

Please complete the questionnaire before June 29th. Due to the nature of the questionnaire, your responses will made available to other members of the committee unless your desire to remain anonymous is indicated on the questionnaire. If you have any additional questions, please feel free to contact me at (360) 866-1000.

Respectfully,

Steve North – President
Thurston County Fire Chief's Association

APPENDIX B

**Thurston County Fire Chief's Association
Fire Investigation Capability Questionnaire**

The following questionnaire is to assess the fire investigation capabilities and needs of police/fire agencies within Thurston County and to determine the wiliness of those agencies to participate in a fire investigation task force.

Department Name: _____

Name of Person completing Survey: _____

1. Does your department conduct fire investigations within your jurisdiction/district?

- Yes If yes, go to question 3.
- No If no, answer question 2 and then go to question 13.

2. What is the primary reason your department does not conduct fire investigations?

- Not a statutory requirement of the department
- Inadequate training
- Inadequate experience/expertise
- Other _____

3. How many fires were investigated by your agency in 2004 within your jurisdiction/district:

4. How many times did your agency assist or conduct fire investigations outside of your jurisdiction/district in 2004:

5. Does your department use outside assistance to conduct routine fire investigations?

- Yes
- No If no, go to question 8.

Comment/Explain _____

6. During 2004, how many routine fire investigations were conducted in your jurisdiction using outside assistance?

7. During 2004, what agency(s) provided your department assistance in conducting routine fire investigations?

8. Does your department use outside assistance to conduct complex fire investigations (fatality, arson, large loss fires)

- Yes
- No If no, go to question 10

Comment/Explain _____

9. During 2004, how many complex fire investigations were conducted in your jurisdiction using outside assistance?

10. Please indicate the number of trained fire investigators within your agency:

- Level I Awareness Level: _____
- Level II 40 hour (Community College): _____
- Level III 80 hour (National Fire Academy): _____
- Level IV Certified Fire Investigator: _____

Please indicate your level of agreement with the following statements.

10. My agency has an effective fire investigation program.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

11. My agency can effectively conduct routine fire investigations without the use of outside assistance.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

12. My agency can effectively conduct complex fire investigations (fatality, arson, large loss) without the use of outside assistance.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

13. My agency is in need of fire investigation training.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

14. Fire Investigation training is readily available for department personnel.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

15. If needed, external resources are readily available to assist my agency with routine fire investigations.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

16. If needed, external resources are readily available to assist my agency with complex fire investigations.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

15. My agency would be willing to participate in a fire investigation task force.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

16. If you answered no to question 15, what could be done to encourage your organization to participate?

17. Do you wish to have your responses kept anonymous?

- Yes
- No

Thank you for participating in this important questionnaire! Your responses will greatly assist us in our efforts to enhance fire investigation capabilities within Thurston County. The results of this questionnaire and Applied Research Project will be made available upon request. For a copy, please contact:

**Steve North – President
Thurston County Fire Chief's Association
4131 Mud Bay Rd S.W.
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(360) 866-1000
email: snorth@mclanefire.org**