EMERGENCY SERVICES FOUNDATION

SCHOLARSHIP SCHEME MAY 1999

APPLICATION & FINAL REPORT

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COMBINED EMERGENCY SERVICES FOUNDATION
SCHOLARSHIP SCHEME 1999

1.   SCHOLARSHIP APPLICATION BACKGROUND

(a)   The basis of my scholarship was to undertake travel to the United States Of America to conduct research regarding a concept I had developed for the monitoring and tracking of all fire related incidents in Victoria. This system was to be known as **AFIMS** *"Arson And Fire Incident Monitoring System"*

(b)   As part of the research I attended a conference held by the International Association of Arson Investigators (IAAI) on *'Profiling The Future Of Arson Into The 21st Century'*, visited the Camden County Police Department Arson Squad to discuss the strategies, methodologies and techniques they used to develop a similar system which successfully reduced their incidents of arson, and visited the Los Angeles Fire Department to discuss how they proactively deal with the reduction of bush fire incidents in their area.

(c)   The information gleaned from the research will be used to assist with the implementation of AFIMS at the Victoria Police Arson Squad.

2.   ITINERARY OF TRAVEL

May 9th Depart Melbourne For Los Angeles

May 10th – 12th Los Angeles Fire Department Arson Unit

May 12th – 15th Camden County Police Department New Jersey

May 16th - 21st International Association Of Arson Investigators Conference Las Vegas Nevada.

May 21st – 22nd Los Angeles

May 24th Depart USA For Australia.

3.   AFIMS (ARSON AND FIRE INCIDENT MONTIROING SYSTEM)
(i)   BACKGROUND

AFIMS will be a unique purpose built computer software program capable of monitoring all fire activity within the State of Victoria. AFIMS will be a database of all fire incidents throughout the State, will have the ability to conduct automated analysis of all incidents and entities involved and will use Mapinfo as a visual aid to display current fire activity on a computer screen.

AFIMS will create its own records using all the available fire data from agencies including Victoria Police, Metropolitan Fire And Emergency Service Board (MFESB), Country Fire Authority (CFA), and Natural Resources and Energy (NRE). Agency data will be received daily at the Arson Squad in the form of an automatically generated email file and will use this data to create the AFIMS record.

(ii) AFIMS ABILITY

Automated analysis of predetermined data fields within AFIMS will result in users being notified that a potential arson problem is occurring or may be about to occur.

AFIMS will be a purpose built computer software program designed specifically for the Victoria Police Arson Squad and when installed will afford investigators the following advantages:

- the capability to electronically receive information from the MFESB, CFA and NRE using internet e-mail for direct upload to the database, thus saving time

- an adaptable storage facility and recording system able to hold data on all incidents of fire and arson within the State of Victoria,

- the ability to conduct and disseminate timely analysis of the data contained within the database,

- the ability to easily visualize the locations and types of fires and arson incidents through use of icon representation,

- the ability to accurately monitor the locations of fire and arson incidents throughout the State,

- it will assist with identifying possible further or future locations of arson incidents,

- it will help identify arson offenders,

- it will provide for the *proactive* implementation of strategic plans to reduce the numbers of arson incidents,

- it will lessen the hazards experienced by Emergency Services workers by reducing the total number of incidents required to be attended in the State of Victoria in regards to arson and fire incidents, and

- it will give external agencies such as the CFA, MFESB, and NRE ready access to all information recorded and stored within this database

- AFIMS will incorporate *world best practices* for the recording, monitoring, analysis, and detection of offences and offenders.

4. OPINIONS ABOUT THE PROPOSED ARSON AND FIRE INCIDENT MONTORING SYSTEM (AFIMS)

To research the proposal for AFIMS, William LUTZ Crime Analyst with the Camden County Police Department, New Jersey was sought for opinion. LUTZ had recently implemented a similar system after he had identified a dramatic increase in the number of fire and arson incidents in his area associated with what's locally known as *'Mischief Night'*, which is the eve of Halloween.

The experiences to be gained from the members of the Camden Police Department Arson Unit were also considered to be of value due to the shear number of arson incidents they have investigated.

(i) BACKGROUND

Camden is one of many Countys situated within New Jersey on the East coast of America. Camden is approximately 2½ hours drive South of New York City and 1 hour North of Atlantic City. Camden is the 5th most dangerous place in America with approximately 60 homicides per year. Camden covers an area of approximately 9 square miles, has a population of 82,000 and the average house price is between $15,000.00 - $20,000.00. Camden Police Department has approximately 400 members and has approximately 60 police cars on patrol during any one shift.

(ii) MISCHIEF NIGHT

In the early to mid 90's Camden County was experiencing an enormous problem with what is known as *'Mischief Night'*, the eve of Halloween. During a 6-hour period the 9 square mile area of Camden County was averaging a total of 176 reported residential arsons.

The following images are an example of the devastation caused during *'Mischief Night'*. These type of images are fairly common in Camden and just a small example of what it was like. Of all the homes destroyed by arson during *'Mischief Night'* none of them have undergone any repair or demolition. They remain in situ.

The following pictures depict Arlington Street, Camden. All of the homes in this street have been devastated by arson apart from two which are still currently occupied. In total only 8 people now live in this street which was once fully occupied.

ARLINGTON STREET, CAMDEN

In response to the alarming increase of residential arsons William LUTZ of the Camden Police Department Crime Analysis Unit took a new approach to arson analysis and investigation and started to map geographically all the fires for *'Mischief Night'* using Mapinfo.

(a)   MAPINFO

MapInfo is a computer software package that allows users to visually display data on a map similar to a Melways road map. The advantage of using MapInfo is that the user can remove and add information

such as train lines, rivers, parklands etc from the displayed map as required. All data entered into the map under goes a geocoding process before it is inserted in the display. Geocoding is a process that identifies exactly in a street where a premises is located. MapInfo also offers the ability to easily add and remove different types of data. It also allows the use of a different icon representation and color for each data type. This process makes visual interpretation of the data easier and allows for a person not previously exposed to the information the chance to more easily understand the current situation through a limited briefing. The use of an electronic map such as MapInfo was also enormously time efficient, and professional in its presentation ability.

(b)   WILLIAM LUTZ

LUTZ is an experienced crime analyst who has worked in law enforcement since 1993. LUTZ is a member of the 'International Association of Crime Analysts' and has written many published articles on fire and arson investigation. One of these articles appeared in 'The Police Chief' in May 1998 titled 'Computer Mapping Helps Identify Arson Targets'. LUTZ also holds a Masters Degree in Public Administration.

Once all known incidents were mapped other information such as known gang locations, properties in liens, properties in serious liens (owes tax to the City), and electoral records of persons who voted in the previous election were inserted into the map. These types of information were considered to be relevant as it showed in one way or another a persons commitment or involvement within the community.

Using these new techniques the Camden Police Department started to predict where future or further residential arsons may occur.

(a)   LUTZ CHOSE THE DATA TYPES FOR THE FOLLOWING REASONS:
- **PROPERTIES IN LIENS AND SERIOUS LIENS**
  Due to the low value of most homes in the area (Between $15,000.00 - $20,000.00)

- **ELECTORAL RECORDS OF PERSONS WHO VOTED IN THE PREVIOUS ELECTION**
  Americans who vote are considered to be community minded. This assumption is made because voting covers issues such as education which is a priority concern to most Americans.
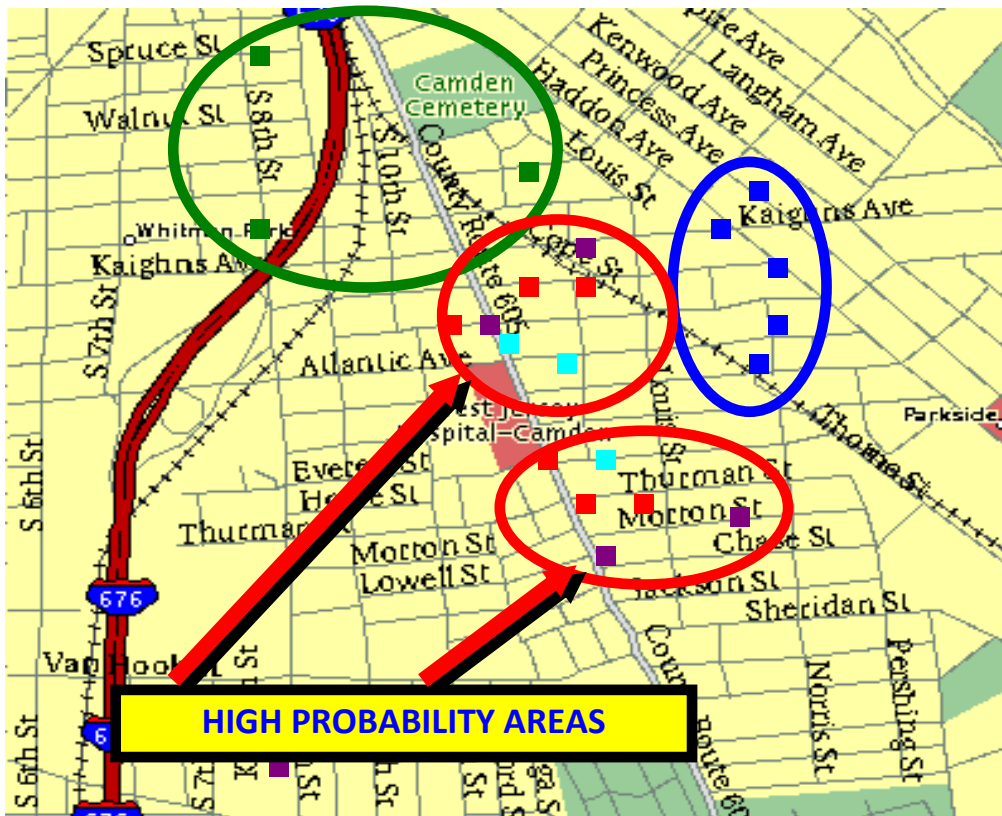
- **KNOWN GANG LOCATIONS**

Known gang locations associated with other gang intelligence helped to establish whether or not there was current gang rivalry in an area. Identified or known gang rivalry was considered to be a high probability for arson to occur as gangs would often use arson as a way of removing opposition and gaining territorial control.

All relevant data would then be displayed in the following way.

EXAMPLE ONLY

LEGEND

■	**Previous Arsons**	■	**Property In Liens**
■	**Gang Locations**	■	**Property In Serious Liens**
■	**Electoral Records**		

From this position further analysis would be conducted and predictions of future / further arson incident locations were determined. Once possible target areas were identified plans incorporating all emergency services in the City of Camden were put into place. These plans were in three stages:

- **STAGE ONE**

Stage One - Involved getting firemen into fire trucks, out of the station houses and into the identified problem areas as part of proactive patrols and to decrease response time to fires.

- **STAGE TWO**

Stage Two - Involved assisting the fire department by assigning dedicated police patrols to the same problem areas to which the fire trucks were assigned.

- **STAGE THREE**

Stage Three - Involved getting the local community and media involved. Through media publications the public were used to more actively call in suspicious activity.

The key to success in all of these stages was communication. All persons involved were thoroughly briefed and were aware of the current situation.

Since the Camden Police Department started looking at fire and arson information in this way they have been able to reduce the numbers of arson incidents on *'Mischief Night'* from 176 to nil.

Residential arson activity during *'Mischief Night'* in Camden New Jersey is no longer an issue.

Robert ALLENBACH, Chief of Police Camden Police Department attributes the successes of the *'Mischief Night'* arson reductions directly to LUTZ initiatives and the use of computer mapping of the incidents and direct targeting of perceived trouble areas.

During consultation with LUTZ about AFIMS the following issues were discussed:
- the current level and types of arson and fire activity within Victoria,
- the policing structure within Victoria in regards to Districts and Regions,
- the clearance rate of offences,

- AFIMS methodology, and

- LUTZ was also shown the proposed database data field design criteria

LUTZ agreed that what was being proposed for AFIMS by the Victoria Police Arson Squad appeared to be an appropriate way of looking at fire and arson incidents within Victoria. He was of the belief that it would assist in reducing the total number of arson incidents in the State.

Whilst visiting with the Los Angeles Fire Department (LAFD) Arson Unit I further discussed AFIMS with Captain Paul STEFFEN.

STEFFEN advised that the LAFD had a similar system to AFIMS in place for the past 5 years, but their system lacked the ability to display the information on a map like MapInfo. Modifications in the near future were to be conducted to allow for mapping which STEFFEN saw as a vital attribute.

## 6.	OTHER INFORMATION

While researching AFIMS it became apparent that arson investigators across America were using many different techniques to the Victoria Police as part of their arson investigation tool bag. Most of the techniques appeared as though they would be universally adaptable, and offered benefits to the Victoria Police Arson Squad.

These tools were:

- Accelerant detection K9,

- Polygraph examinations,

- Statement analysis, and

- Specific use of local city departments and elected government officials

## (a)	ACCELERANT DETECTION K9

During my travel I spoke with many arson investigators. Of these two in particular detailed some very positive results in regards to the use of accelerant detection K9 for cause and origin determination. These investigators included Frank OGLESBY of the Los Angeles Fire Department, and Duane STONICH of the Joliet Fire Department in Illinois.

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(i)   BACKGROUND

The Los Angeles Fire Department (LAFD) covers the City of Los Angeles, an area of approximately 23 square miles, with a population of 4.5 million people. The Arson Unit consists of approximately 30 investigators all of which have approximately 5 years previous experience as fire fighters.

All Arson Unit members are equipped very similar to the local police and carry firearms and associated equipment, have arrest powers, conduct all their own interviews, and by all accounts operate as police.

All fires in the City of Los Angeles are investigated by the Los Angeles Fire Department. The police do not investigate fires and would only become involved in an arson investigation if there was other foul play involved such as murder or other crimes.

Frank OGLESBY is an arson investigator and accelerant detection K9 handler with the LAFD. OGLESBY is one of only 43 accelerant detection K9 handlers across the United States of America. Although OGLESBY is employed by the LAFD he is often called upon to travel with his K9 to other states and cities within America and Hawaii to assist with cause and origin determination.

OGLESBY is a trained fire fighter with many years experience prior to becoming an accelerant detection K9 handler. OGLESBY's opinion is that an accelerant detection K9 handler must be an experienced arson investigator and that a general police dog handler with no arson investigation experience is not a suitable option. OGLESBY believes this as a thorough understanding of an arson scene as an investigator is required so as to get the best results from the K9. OGLESBY further states that the job position of accelerant detection K9 handler is a permanent career position and that the dog and handler must remain together for the duration of the dogs career, somewhere between 8 - 10 years.

OGLESBY states that he has had enormous success with accelerant detection using a K9, and in most cases the K9 is able to detect accelerant at a lower level than what would normally be detected under forensic examination in America.

An example of OGLESBY's success using an accelerant detection K9 relates to a particular case where a 2 storey shop in downtown Los Angeles had collapsed after being destroyed by fire. The scene was a total mess and there was rubble approximately 40 feet deep.   In normal cause and origin determination the

scene would need to be cleared so that the arson chemist could conduct an examination.   In this case OGLESBY examined the scene using the accelerant detection K9. Within 15 minutes accelerant had been located by the K9. This now gave investigators the ability to start considering their options for focusing the investigation based on all other factors such as premises usage, and victim statements.

Chief Bruce BARBER, Officer in Charge of the LAFD Arson Unit states that a lot of the units work involves the use of the accelerant detection K9, and the results they achieve are very positive. The accelerant detection K9 is also a valuable tool in determining that a scene may not be an arson due to the lack of accelerants detected.

Lieutenant Duane STONICH is an accelerant detection K9 handler with the Joliet Fire Department in Illinois.

In 1991 STONICH became the first accelerant detection K9 handler with the Joliet Fire Department. At this time 75% of all fires were arson. The current percentage of fires in Joliet which are arsons is 15%. STONICH and the Chief of the Joliet Fire Department attribute part of the success in the reduction of arson to the ability of the K9 in prompt scene cause and origin determination, and to the positive public relations work conducted with the dog.

STONICH went on further to say that only now 8 years after the accelerant detection K9 implementation are they starting to find that criminals are changing their modus operandi and using available materials for arson and getting away from using accelerants.

STONICH agreed with OGLESBY'S statement and he also believes that an accelerant detection K9 handler should be an experienced arson investigator as the handler must have a good investigative knowledge in regards to an arson scene.

(ii) ADAPTABILITY TO VICTORIA

STONICH'S statement about how arson offenders have now changed their modus operandi appears on face value to be very damning in regards to the worth of accelerant detection K9. My opinion is that accelerant detection K9 would still be a very valuable tool and worthwhile proposition. To prevent

what's happened in Joliet occurring investigators would have to continually discovering new ways of dealing with arson investigation.

I believe that accelerant detection K9 have a use in arson investigation in Victoria as it offers investigators another level of investigative assistance.

(b)   POLYGRAPH EXAMINATIONS

All persons involved in law enforcement I spoke with highly praised the use of polygraph examinations. These examinations gave investigators the ability early during an investigation to identify a persons disposition in a crime, giving them the ability to better focus or direct the investigation, and saved enormously on manpower time and investigative costs.

Detective HOFFMAN of the Camden County Police Department Arson Unit stated that they have great success with polygraph examinations and a lot of prosecutions and subsequent convictions were bought about as a direct consequence of polygraph examinations.

HOFFMAN further stated that he believed the successes of the polygraph were derived through a mindset that most had when they underwent the examination.

Most persons involved in an arson investigation freely underwent the polygraph examination for either one of two following reasons:

- because they knew they were innocent,
- or the guilty thought they would be able to beat the test, and clear their name from the inquiry.

Once a guilty person underwent the examination and the results proved that they were deceitful in their answers most offenders normally then confessed to the crime. This confession was supported by other corroborative evidence.

Polygraph is a very widely used and accepted law enforcement tool across the United States of America, and there is no legal requirement for a person to undergo a polygraph examination. Other than for criminal investigations polygraph examinations are also used in areas such as police recruit applicants.

(i)   POLYGRAPH WITHIN AUSTRALIA

A polygraph examination can take anywhere from between 2 - 4 hours. In the overall picture of an investigation polygraph examination could substantially reduce the total number of hours spent on an investigation, thus freeing manpower for other investigations and saving enormously on investigative costs.

I am aware of investigations conducted by the Arson Squad where polygraph would have been of great benefit.

In one case an alleged victim of an arson was always considered to be the offender although no corroborative evidence could be found. After some time listening devices were installed to gain evidence but with little success. This person now looks to be in a reasonable position to receive an insurance company payout and continue unconvicted.

My thought is that if a polygraph examination was available and conducted in the initial stages of the investigation then a prosecution may have been successful and many police man-hours and dollars would have been saved. On the other hand if the alleged victim was infact just that then investigators could focused on other avenues of enquiry.

From what I am aware there is no law enforcement agency within Australia using polygraph examinations, although I believe some insurance companies are considering their use.

I believe that polygraph examinations should form an integral part of an investigators tool kit and be used during all investigations.

(c)   STATEMENT ANALYSIS

Lieutenant Joseph RICHARDS is a polygraph examiner with the Camden Police Department.

RICHARDS stated that in conjunction with the polygraph examination he also does analysis of any statement made by the person.   Statement analysis is another tool that works hand in hand with polygraph examination, although it can be used as a skill on its own.

Statement analysis involves letting the victim or witness write their own statement using their own words. When a victim or witness starts their statement they are normally given a time frame of between 18-24 hours from the time of the incident and instructed to start at any time suitable within this period.

Once the statement is complete it is then analysed. During analysis things such as the time they chose to start at, and the words and phrases used are analysed. From this analysis an opinion is formed of the author and their disposition in the crime determined.

This type of analysis is known world wide as *"SCAN" (Scientific Content Analysis),* it is used by the Federal Bureau of Investigation (FBI), and by law enforcement and military agencies throughout the United States of America, and Canada. It is also used by bank and insurance investigators and by private industry.

The *"SCAN"* technique was recently used to analyze the suicide letter left by O.J. SIMPSON.

"SCAN" is a scientific formula and a technique developed by Mr. Avinoam SAPIR, a polygraph examiner with a background in the Israel Police Department in Jerusalem. SAPIR holds a Bachelors Degree in both Psychology and Criminology, and a Masters Degree in Criminology.

Persons trained in *"SCAN"* may be able to determine:
- whether the subject is truthful or deceptive
- what information the subject is concealing
- whether or not the subject was involved in the crime.

(d)   SPECIFIC USE OF LOCAL DEPARTMENT AND ELECTED GOVERNMENT OFFICIALS

The Los Angeles Fire Department often use the resources of local city departments and elected government officials to assist with an arson investigation.

Local city departments and elected government officials are selected for use as their positions lend support to raising the profile of a situation, and normally they would be in a position to assist with funding.

If there was an arsonist working in the Beverly Hills area the following is an example of how the LAFD would use local city departments and elected government officials during that investigation.

- Contact would be made with City Hall to advise the Mayor of the current situation

- All persons in the area in question would receive notification via the mail of the current situation.

- Depending on the enormity of the situation a public meeting of the residents may be called to air the information

- Local residents would then by used like an extension of the neighborhood watch program and asked to call in details of an suspicious persons, vehicles or activity.

- Government Officials living in the area would be used to assist with funding of things such as the mail run publications, or to assist with investigation running cost

Captain Paul STEFFEN of the LAFD states that getting the local council and / or a Member of Government involved helps greatly as these people are more inclined to get involved if they know something is happening in their immediate area.

(i)   ADAPTABILITY TO VICTORIA

The current Police Community Consultative Committee (PCCC) is probably the only like program we have in Victoria. The major difference I think is that the PCCC is not arson offence specific, and I don't believe has been used in such a way as described above. In past times a similar type of approach has been used for arson investigation using *Crime Stoppers* with investigations such as the Mt. Dandenong bushfires. With the ongoing success of the *Neighborhood Watch* and *Crime Stoppers* programs in Victoria I believe that the above version used by the LAFD would be a success if tried in Victoria.

7.   OVERALL SUMMARY OF TRAVEL AND BENEFITS GAINED

The reason I applied for the Emergency Services Foundation scholarship was to explore and pursue an idea and initiative I had developed for the implementation of computer software program capable of monitoring the States fire activity and entities involved. Support from the Emergency Service Foundation has given me the opportunity to visit with overseas agencies heavily involved in arson investigation to further research my concept.

Undertaking this travel has given me the confidence to believe that what is being proposed under AFIMS is suitable for Victoria needs. This statement is based on the fact that other persons actively involved in arson investigation who have implemented similar systems with success agree the system is of merit.

Once AFIMS is developed and implemented the benefits of the system will be as follows:

(i) COMMUNITY

- The benefit to the community will be that they will have a safer environment to live in through a reduction of arson incidents

- A reduced crime rate

- A reduced cost for the investigation of fire and arson incidents

- A reduction in the cost of arson investigation may be directly reflected by a cut in the cost of insurance rates and premiums

- A reduced cost to the community in the combating of fire and arson incidents and replacement of public property

(ii)   APPLICANTS AGENCY

- The Victoria Police standing as a professional and progressive organisation will be continued

- The Arson Squad will have a *world best practice* computer system

- A quality database which would offer the Arson Squad direct and timely information on serial or recidivist criminals

- The ability of better predicting offences as a preventative measure.

- A thorough knowledge of current fire and arson incidents in the State of Victoria.

- Ability to implement *proactive* strategic plans on current arson trends / patterns, or known or perceived problem areas based on historical data.

- Police officers would be at a reduced risk of death or serious injury through not having to attend such incidents

- A reduced crime rate

- A reduction in cost of arson investigation

(iii)   APPLICANT

- I have advanced my personal skills and experience as a Crime Analyst involved in arson and fire investigation

- I have the opportunity to teach other people from the Victoria Police and external agencies such as MFESB, CFA and NRE, the new skills and techniques I have learned in arson and fire investigation

- The knowledge I have gained will assist me in the implementation of a *world best practice* computer based system at the Victoria Police Arson Squad that will improve the quality and   efficiency with the way *Emergency Services* respond and deal with fire and arson incidents

(iv)   OTHER AGENCIES

- There will be a central repository for all information in regards to fire and arson incidents in the State of Victoria

- Strengthen the working relationship between agencies through co-operation

- Provide a system to assist with each agencies legislative requirements for reporting on issues such as identified faulty electrical products for safety recalls

- A quality database which would offer all emergency services direct and timely information on serial or recidivist arson offenders

- *Emergency Services workers* would be at a reduced risk of death or serious injury through not having to attend such incidents

- A reduction in cost of arson investigation

- The enhancement of the Fire Investigation Policies And Procedures protocol that the Victoria Police, MFESB, CFA and NRE operate under