



2018 Emergency Services Foundation Scholarship

Research international capability and capacity to deliver critical forensic document examination services which will aid and support a multi-agency emergency service best practice approach to achieve greater public safety.



VICTORIA POLICE

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2 EXECUTIVE SUMMARY

Forensic Document Examination capability within Victoria is well established and plays a crucial role in a range of investigations, however, the nature and type of crime encountered is rapidly changing. Currently, the National Terrorism Threat Level sits at probable. We need to respond to these emerging challenges and demands by adapting and developing our capabilities.

The research conducted into international capability and capacity to deliver critical forensic document examination services focused on three core areas:

- Investigation of International best practice forensic document examination.
- Development and support of a multi-agency best practice approach.
- Development of an international network of forensic experts to share information and learnings.

The research identified the following areas for capability development:

- Develop international best practice for forensic document examination by building capability and capacity with a focus on prevention, preparedness, response and recovery.
- Further develop forensic document examination mobile capability by utilising the mobile technical vehicle for collection, examination and restoration of document related evidence at the scene of a critical incident or event.
- Review and implement Document Examination training guidelines reflecting international programs. Model future document examination training on protocols currently in use in the United States of America, Canada and Europe.
- Develop and implement an integrated response model to support a multi-agency best practice approach.
- Maintain established collaborations with international networks of forensic experts.

In summary, the research has highlighted opportunities to further enhance forensic document examination capability in Victoria. The provision of an adaptive and responsive service with a focus on intelligence and investigative products will support greater community safety for the Victorian and Australian communities.

3 ACKNOWLEDGEMENTS

I would like to acknowledge the following individuals who provided encouragement, guidance and support, through the scholarship process:

- Inspector Wayne Martin – Victoria Police
- John Ganas – Victoria Police
- Cate Quinn – Victoria Police
- John Doherty – Victoria Police
- Siusan MacKenzie - Emergency Services Foundation
- Jenny Davis – Emergency Services Foundation

I would also like to acknowledge the valuable time and assistance provided by the following organisations that made this research possible:

- Emergency Services Foundation
- Victoria Police
- Victoria Police Forensic Services Department (VPFSD)
- United States Secret Service (USSS)
- United States Federal Bureau of Investigation (FBI)
- United States Immigration and Customs Enforcement (ICE)
- Canada Border Services Agency (CBSA)
- County of Los Angeles Sheriff's Department (LASD)
- Los Angeles Police Department (LAPD)
- American Society of Questioned Document Examiners (ASQDE)

Lastly I would like to acknowledge the following individuals whose advice and collaboration was crucial in facilitating this research project:

- Kathleen Storer - Branch Chief, Questioned Documents Branch, USSS
- Stephen Shaw - Unit Chief, Questioned Documents Unit, FBI
- Gregg Mokrzycki - Forensic Document Examiner, Questioned Documents Unit, FBI
- Lindsey Dyn - Forensic Document Examiner, Questioned Documents Unit, FBI
- John J. Ross, Jr. - Section Chief, Forensic Document Laboratory, ICE
- Samiah Ibrahim - Manager, Forensic Document Examination Section, CBSA
- R. Brent Ostrum - Senior Forensic Document Examiner, Forensic Document Examination Section, CBSA
- Tobin A. Tanaka - Forensic Document Examiner, Forensic Document Examination Section, CBSA
- Jane Rodriguez - Senior Forensic Document Examiner, Questioned Documents Unit, LAPD
- Miriam Angel - Forensic Document Examiner, Questioned Documents Unit, LAPD
- Darrick Lertyaovarit - Forensic Document Examiner, Forensic Document Examination Section, LASD
- Iris A. Cruz - Senior Criminalist, Forensic Document Examiner, Forensic Document Examination, LASD
- Dr Mara MELINO - Associate Professor, Kentucky State University, Kentucky
- Dr Michael P. Caligiuri - Professor, University of California, San Diego
- Derek Hammond - Forensic Document Examiner, US Army Criminal Investigation Laboratory (USACIL), Georgia
- Jonathan Jackson Morris - Scottish Police Authority Forensic Services, Glasgow, Scotland

4 INTRODUCTION

Victoria Police's role is to serve the Victorian community and uphold the law to promote a safe, secure and orderly society as defined in the Victoria Police Act 2013 No. 81 Of 2013. Functions are further defined as:

- preserving the peace
- protecting life and property
- preventing the commission of offences
- detecting and apprehending offenders
- helping those in need of assistance

The Forensic Services Department's role is to deliver an integrated forensic service to Victoria Police, the judicial system and the community. This is achieved through:

- providing operational tactical intelligence to assist police investigations and provide avenues of enquiry
- providing a response in disasters and emergency management events, i.e. terrorism events and mass fatalities
- providing evidence for the Courts

The Forensic Document Examination Unit provides critical forensic document examination capabilities to assist and support Victoria Police and the Emergency Services in keeping the community safe. Forensic Document Examination can play a crucial role in an array of investigations, from threats to individuals through to acts of terrorism.

It is vital that we mature our existing Forensic Document Examination capability and capacity to deliver a modern multi-functional service aligned to a multi-agency response. In response to a changing environment future forensic document examination must focus on intelligence efforts within the investigative framework to address critical threats and emerging issues. We must grow our capabilities and competencies by utilising knowledge and techniques used by leading international agencies. Building an international network of information, intelligence and knowledge sharing will be highly beneficial to other emergency management agencies and the wider community

Victoria has recently developed and acquired a state-of-the-art mobile forensic capability that can be rapidly deployed to an incident allowing for a real-time forensic response. The mobile technical vehicle can be utilised at a locality or critical incident such as a terrorist event, a covert operation, or a complex crime scene that requires lengthy examination and the collection, examination and restoration of document related evidence. This capability also supports the intelligence and investigative collection process. Rapid forensic intelligence and investigative products will greatly assist frontline police, first responders and investigators at the scene of critical incidents.

A commitment to modernising and building capability will support Victoria Police in working with other Victorian government departments, enhancing cross-department service delivery, particularly in the area of emergency management. This project aims to enhance the capability and capacity of Victoria Police's forensic document examination services and in turn improve responsiveness to keep the community safe. The timely analysis of forensic evidence is critical in providing police with significant intelligence, facilitating prosecutions and preventing criminal activity.

This report outlines the research undertaken in August 2018 as part of the Emergency Services Foundation Scholarship program. The key focus of this study was to gain an understanding of world's best practice forensic document examination capability internationally and to apply this in the Victorian context.

5 OVERVIEW

5.1 UNITED STATES DEPARTMENT OF HOMELAND SECURITY, UNITED STATES SECRET SERVICE (USSS), FORENSIC SERVICES DIVISION: WASHINGTON DC, USA

The United States Secret Service is one of the most elite law enforcement agencies in the world housing one of the foremost questioned document laboratories. The Secret Service investigative responsibilities employ the use of a Forensic Information System for Handwriting (FISH) along with other database systems. Additionally, it is home to the world's largest ink library and is now using automated systems to continue to grow and populate this important reference. This advanced facility also accommodates Printer Ribbon Readers. The Secret Services was established in 1865 to protect the US currency and in 1901 this was expanded to include the protection of the President of the United States.

Tours, demonstrations and discussion points:

- Questioned Document Laboratory (QDL)
- Counterfeit Investigation Division (CID)
- Specimen document vault
- International Ink Laboratory
- Forensic Information System for Handwriting (FISH) database
- Thermal Ribbon Analysis Platform (TRAP)
- Keyence Digital Microscope
- Ink and toner analysis
- TLC, GC, XRF, SEM, FTIR Spectroscopy
- Stamp examinations
- Training programs
- Reporting on handwriting

5.2 UNITED STATES DEPARTMENT OF JUSTICE, FEDERAL BUREAU OF INVESTIGATIONS (FBI) LABORATORY DIVISION, QUESTIONED DOCUMENT UNIT: QUANTICO, VIRGINIA, USA

The Federal Bureau of Investigations Laboratory (FBI) is a state-of-the-art facility, committed to providing advanced specialised training to counterparts from around the world. The FBI utilises the Forensic Information System for Handwriting (FISH) for intelligence and investigative purposes. It is also the training hub for Matchmaker software (Matchmaker Shredded Paper Reconstruction System) gifted to Victoria Police. The Questioned Document Unit (QDU) was established in 1932 and is one of the oldest units within the FBI Laboratory, today it is recognized as one of the largest and most comprehensive crime laboratories in the world.

Tours, presentations, demonstrations and discussion points:

- Questioned Document Unit (QDU)
- Prison Communication and Concealment Techniques
- Bank Robbery Note File (BRNF)
- Threatening Communication Database
- Matchmaker Shredded Paper Reconstruction System
- Plastic bag (polyethylene film product) examinations
- Ink and toner examinations
- Flash ID handwriting database
- Hazardous Evidence Analysis Team (HEAT) Program

- Mobile Questioned Document examination capabilities
- Stamp examinations
- Footwear / Tyre Tread capabilities
- Training programs
- Reporting on handwriting

5.3 UNITED STATES DEPARTMENT OF HOMELAND SECURITY, UNITED STATES IMMIGRATION AND CUSTOMS ENFORCEMENT (ICE) HOMELAND SECURITY INVESTIGATIONS (HIS) FORENSIC DOCUMENT LABORATORY (FDL), QUESTIONED DOCUMENT SECTION: MCLEAN, VIRGINIA, USA

The Immigration and Customs Enforcement Forensic Document Laboratory (FDL) mission is the detection and deterrence of travel and identity document fraud. It is the only US federal crime laboratory dedicated exclusively to the forensic examination of travel and identity documents.

Tours, demonstrations and discussion points:

- Questioned Document Section (QDS)
- Cyber Crime Centre (CCC)
- Identity Document Library
- Imaged document and exemplars library (IDEAL)
- Printing ink library
- Polygraph
- Travel and identification documents
- Document authentication
- Same source counterfeit documents
- Thermal Ribbon Analysis Platform (TRAP)
- Stamp examinations
- Keyence Digital Microscope
- Laser confocal microscope
- Ink and toner analysis
- TLC, GC-MS, ICP-MS, XRF, SEM, FTIR, Raman Spectroscopy
- Laser Ablation System, Laser Induced Breakdown Spectrometer (LIBS)
- X-ray examinations
- Training programs
- Reporting on handwriting

5.4 CANADIAN BORDER SERVICES AGENCY (CBSA): SCIENCE AND ENGINEERING DIRECTORATE, FORENSIC DOCUMENT EXAMINATION SECTION: OTTAWA, ONTARIO, CANADA

The CBSA agency is the largest forensic facility in Canada. Currently focusing on evaluation and reporting procedures and has research interest including method validation issues and the broad application of image and data processing to forensic document examination problems. They have developed and robust techniques for ink ageing analysis. Through collaboration Samiah Ibrahim has offered to assist in the development of document examination capabilities routinely practiced at CBSA but not yet utilised in any Australian or New Zealand laboratories.

Tours, demonstrations and discussion points:

- Questioned Document Laboratory (QDL)
- Ink library
- Ink dating (solvent loss ratio method)
- Travel and identification documents
- Thermal Ribbon Analysis Platform (TRAP)
- Ribbon Analysis Workstation (RAW)
- Stamp examinations
- Keyence Digital Microscope - laser confocal
- Ink and toner analysis
- TLC, GC-MS, XRF, SEM, FTIR, Raman Spectroscopy
- X-ray examinations
- Question stamp impressions
- Reporting on handwriting
- Logical Approach to evidence evaluation
- Write-On (Document comparison software)
- Abstracts database (Lookeen)
- Training programs

5.5 LOS ANGELES POLICE DEPARTMENT (LAPD): SCIENTIFIC INVESTIGATION DIVISION, QUESTIONED DOCUMENTS UNIT: LOS ANGELES, CALIFORNIA, USA

The Los Angeles Police Department (LAPD) services Los Angeles city.

Tours, demonstrations and discussion points:

- Questioned Document Unit (QDU)
- Examination of writing and signatures
- Restoration of entries
- Sequence of entries
- Rubber stamp examination
- Training programs
- Reporting on handwriting

5.6 COUNTY OF LOS ANGELES SHERIFF'S DEPARTMENT (LASD): SCIENTIFIC SERVICES BUREAU, QUESTIONED DOCUMENTS SECTION: LOS ANGELES, CALIFORNIA, USA

The Los Angeles Sheriff's Department (LASD) services the Los Angeles County.

Tours, demonstrations and discussion points:

- Questioned Document Section (QDS)
- Handwriting and hand printing
- Visualisation or enhancement techniques
- Mechanical impressions
- Filed examinations
- Training programs
- Reporting on handwriting

5.7 AMERICAN SOCIETY OF QUESTIONED DOCUMENT EXAMINERS (ASQDE) AND
SOUTHWESTERN ASSOCIATION OF FORENSIC DOCUMENT EXAMINERS (SWAFDE)
COMBINED MEETING: PARK CITY, UTAH, USA

The American Society of Questioned Document Examiners (ASQDE) meeting is held yearly and attracts presenters and attendees from across the international forensic community. The ASQDE meeting is considered internationally to be a premier event dedicated to the field of Forensic Document Examination. Collaboration with peers within the discipline is essential in addressing challenges and enhancing forensic document examination into the future.

Posters, presentations and panel discussions and workshops covered the following range of topics:

- Handwriting and signature examinations
- Human factors in handwriting examinations
- Statistical and algorithmic approach to handwriting comparisons
- Dominant hand
- Disguise behaviours
- Adolescent writing development
- Effects of nationality on handwriting
- Electronic handwritten signature technology
- Conclusion scales
- Elimination theory
- Ink and toner examinations
- Security inks
- Security features
- Ink dating examinations
- Ink Database access
- Identity documents
- Stamp examinations
- Font examinations
- Indentation examinations
- Adhesive removal
- Questioned document examination in China
- Sequence determination
- Method validation
- Organization of Scientific Area Committees (**OSAC**) for Forensic Science update

6 RECOMMENDATIONS

6.1 RECOMMENDATION 1

Develop international best practice for forensic document examination by building capability and capacity with a focus on prevention, preparedness, response and recovery.

Implement the use of new technologies that will assist with:

- Preserving evidence at the scene
- Providing real time intelligence
- Early identification of offenders
- Prevention of further incidents

Further develop our mobile forensic capability by utilising the mobile technical vehicle for collection, examination and restoration of document related evidence at the scene of a critical incident or event:

- Training of personnel for vehicle deployment
- Development of standard operating procedures
- Further trial capability with set up and operational exercises
- Establish and employ new techniques

6.2 RECOMMENDATION 2

Review and implement Document Examination training guidelines reflecting international programs

Model future document examination training on protocols currently in use in the United States of America, Canada and Europe

- Develop a new training program for Document Examination using the model from the USA and Canada
- Incorporate collected resources
- Map to the Australia New Zealand Policing Advisory Agency (ANZPAA) Training and Education Guidelines

6.3 RECOMMENDATION 3

Continue to develop and implement an integrated response model to support a multi-agency best practice approach.

- Promote the use of document examination capabilities
- Provide greater awareness within Victoria Police and other agencies
- Provide education to other services

6.4 RECOMMENDATION 4

Maintain collaborations with international network of forensic experts.

- Liaise with colleagues in the USA, Canada and Europe on best practice and research priorities
- Share information and learnings from within our region
- Participate in international and domestic research and validation testing
- Increase collaboration through actively participating in Standards development

7 REFERENCES

Victoria Police

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Victoria Police Forensic Services Department

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Victoria Police Act 2013 No. 81 of 2013 Authorised Version incorporating amendments as at 20 April 2016

<http://www.legislation.vic.gov.au>

8 APPENDICES

8.1 FORENSIC SCIENCE PRACTITIONERS

I meet with the following individuals from each of the organisation listed:

United States Department of Homeland Security, United States Secret Service (USSS), Forensic Services Division: Washington DC, USA

Kelli Lewis - Laboratory Director

Kathleen Storer - Branch Chief, Questioned Documents Branch

Robert Ramotowski - Chief Forensic Chemist, Questioned Documents Branch

Amanda Moffat - Document Analyst, Questioned Documents Branch

Greg Dalzell - Document Analyst, Questioned Documents Branch

Meg O'Brien - Document Analyst, Questioned Documents Branch

Sandy Raudabaugh - Document Analyst, Questioned Documents Branch

Trista Ginsberg - Document Analyst, Questioned Documents Branch

Jerry Barney - Instrument Analyst, Questioned Documents Branch

United States Department of Justice, Federal Bureau of Investigations (FBI) Laboratory Division, Questioned Document Unit: Quantico, Virginia, USA

Stephen Shaw - Unit Chief, Questioned Documents Unit

Gregg Mokrzycki - Forensic Document Examiner, Questioned Documents Unit

Lindsey Dyn - Forensic Document Examiner, Questioned Documents Unit

Lorie Cousin - Forensic Document Examiner, Questioned Documents Unit

Katelyn Bruno - Forensic Document Examiner, Questioned Documents Unit

Ted M. Burkes - Forensic Document Examiner, Questioned Documents Unit

Michael Gorn - Forensic Document Examiner, Questioned Documents Unit

Joseph Stephens - Chemist, Chemistry Unit

United States Department of Homeland Security, United States Immigration and Customs Enforcement (ICE) Homeland Security Investigations (HIS) Forensic Document Laboratory (FDL), Questioned Document Section: McLean, Virginia, USA

John J. Ross, Jr. - Section Chief, Forensic Document Laboratory

Darlene L. Morin - Document Examiner, Forensic Document Laboratory

Troy Eberhardt- Section Chief, Forensic Document Laboratory

Jordon Brough- Document Examiner, Forensic Document Laboratory

Canadian Border Services Agency (CBSA): Science and Engineering Directorate, Forensic Document Examination Section: Ottawa, Ontario, Canada

Samiah Ibrahim - Manager, Forensic Document Examination Section

R. Brent Ostrum - Senior Forensic Document Examiner, Forensic Document Examination Section

Tobin A. Tanaka - Forensic Document Examiner, Forensic Document Examination Section

Timothy Campbell - Forensic Document Examiner, Forensic Document Examination Section

Andrew Barton - Forensic Document Examiner, Forensic Document Examination Section

Julie Binette - Forensic Document Examiner, Forensic Document Examination Section

Zain M. Bhaloo - Forensic Document Examiner, Forensic Document Examination Section

Javaid Khan - Forensic Document Examiner, Forensic Document Examination Section

Carolyn Dutot - Forensic Facial identification Capacity Development,

Los Angeles Police Department (LAPD): Scientific Investigation Division, Questioned Documents Unit: Los Angeles, California, USA

Jane Rodriguez - Senior Forensic Document Examiner, Questioned Documents Unit

Miriam Angel - Forensic Document Examiner, Questioned Documents Unit

County of Los Angeles Sheriff's Department (LASD): Scientific Services Bureau, Questioned Documents Section: Los Angeles, California, USA

Darrick Lertyaovarit - Forensic Document Examiner, Forensic Document Examination Section

Iris A. Cruz - Senior Criminalist, Forensic Document Examiner, Forensic Document Examination

Suji Lee - Forensic Document Examiner, Forensic Document Examination Section

American Society of Questioned Document Examiners (ASQDE) and Southwestern Association of Forensic Document Examiners (SWAFDE) Combined Meeting: Park City, Utah, USA

Dr Mara MELINO - Associate Professor, Kentucky State University, Kentucky

Dr Michael P. Caligiuri - Professor, University of California, San Diego

Derek Hammond - Forensic Document Examiner, US Army Criminal Investigation Laboratory (USACIL), Georgia

Jonathan Jackson Morris - Scottish Police Authority Forensic Services, Glasgow, Scotland

Kevin P. Kulbacki - Dept. of Treasury, Internal Investigation Service (IRS), National Forensic Laboratory, Chicago

Khody R. Detwiler - Lesnevich & Detwiler, Pennsylvania

John Paul Osbourn - Osborn & Son, New Jersey

Brenda Lanners - San Diego County Sheriff's Department, San Diego

Linton A. Mohammed - Forensic Science Consultants, Inc. San Francisco

F. L. Jim Lee, Jr. - Summit forensic Document Laboratory

Lim Chin Chin - Forensic Experts Group, Singapore

Yvonne Sim - Forensic Experts Group, Singapore

Cecile Jacob - Handwriting Examiner, France

Carrie Polston - Doctoral Student, Sam Houston State University, Texas

Douglas Ridolfi - Buffalo State University, New York

Ning (Linda) Liu – Associate Professor, Jiangsu Police Institute, China