



This Annual Report is a publication of the Canadian Police Research Centre. For additional copies or further information contact:

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*Chairman's Message*

Throughout 1997 and 1998, the Royal Canadian Mounted Police (RCMP), the National Research Council (NRC) and the Canadian Association of Chiefs of Police (CACP) have continued one of the most important partnerships in policing, the Canadian Police Research Centre (CPRC).

With the dedicated efforts of our team of project managers from NRC and the RCMP, we have continued our efforts into research and development that will make for an efficient and safe environment for front-line officers now and into the future. In this past year, CPRC hosted two secondments; John Evans, from Edmonton Police Service, and Jamie Kerr, from RCMP Centralized Training, have contributed many hours to the exploration of the innovative use of the Internet generally and the Public Safety Network initiative in particular. This commitment of support from the police communities we serve is much appreciated and vital in a time of limited resources.

This year marked the successful signing of a memorandum of understanding between CPRC and its United Kingdom counterpart, the Police Scientific Development Branch, to promote the exchange of technical information and to facilitate cooperative research and development projects. A similar initiative is nearing completion with the United States National Institute of Justice. These kinds of strategic partnerships will be vital to the effectiveness of CPRC in responding to the information and technology needs of the Canadian law enforcement community.

We would like to acknowledge the significant contribution of our previous Chairman, Bob Middaugh. His enthusiasm and his tireless efforts on behalf of CPRC during his time as the Chair of the CACP Operational Research Committee have left us well positioned for the future. We extend our best wishes to Bob in his future endeavours.

The Annual Report describes the many ongoing initiatives and projects of CPRC. The material is provided for your information and we ask that you review these projects and give us your opinion and input. Candid criticism is also welcome so that we might better serve you now and into the future.

A handwritten signature in black ink, appearing to read "W. J. Closs".

Chief Bill Closs  
CACP Operational Research Committee



### *Introduction to the Canadian Police Research Centre (CPRC)*

**Mission:** To provide leadership and focus for a national program of research, development, evaluation and commercialization in the law enforcement and public safety sectors in Canada.

**Goal:** To see that the best equipment and information is available to the Canadian police community and to offer Canadian expertise and enterprise an opportunity in this specialized field.

The CPRC is a partnership between the Canadian Association of Chiefs of Police (CACP), the Royal Canadian Mounted Police (RCMP) and the National Research Council (NRC) Canada and is staffed by personnel from the RCMP and NRC. Its structure and terms of reference allow it to deal effectively with police equipment and information research, development and evaluation.

The objectives of the CPRC can be summarized as follows:

- to develop the best tools (equipment and information sources) for the police community;
- to strive to keep necessary technology affordable;
- to forge partnerships with Canadian industry and the national and international research community.

The CPRC strives to ensure that the interests of the Canadian police community are best served with the available resources. The ultimate objective is to ensure that CPRC expenditures result in the timely transfer of technology to the police user for greater safety, increased efficiency and effectiveness.

The CPRC has a national focus, a single coordinated effort to support research and develop technologies for Canada's law enforcement community, and it promotes interaction between the police community, government, industry, universities and other research organizations.

The CPRC ensures that research results, expertise, information and facilities are shared among all partners. Equally important, the CPRC provides "technology partner" evaluation services to Canadian police agencies, participating government agencies, security firms, and Canadian industry. This benefits Canadian industries by giving them an opportunity to test security oriented products under operational conditions. Canadian products are thereby given credibility to compete successfully in domestic and international markets.

The collaborative effort of the CACP, RCMP and NRC continues to result in the sponsorship of numerous research projects and in the development of new products and information sources for the public safety market.



*1997/1998 CPRC Executive Board*



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**CATEGORY A**

**HEALTH AND SAFETY – PROTECTING THE POLICE IN HAZARDOUS SITUATIONS**

**AMPEL Probe – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: TM-06-98 “AMPEL Probe Evidence Collection Device”

A commercial product, the AMPEL Probe, consisting of polycarbonate tongs (30cm - 12") has been developed for searching suspects, crime scenes, and exhibits. The driving factors are to reduce the risk of biohazard exposure to personnel and to avoid contamination of exhibits. Five units have completed field trials in police agencies across Canada, with report to be completed in 1998.

**Blast Suppressant Foam Containment System – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6340  
John Bureaux, Canadian Bomb Data Centre (613) 993-7880  
REPORT: TM-06-95R “Blast Suppression Foam”

Initial results of this research (as reported in TM-06-95R Blast Suppression Foam) were extremely successful and have led to a new development phase dealing with foam delivery, foam formulations, and containment apparatus in progress. Due to the sensitivity of this work at this time, no further reports are being released. Commercialization is imminent to provide this system to first responders.

**Bomb Suit Testing – Active**



PROJECT MANAGER: John Arnold, CPRC (613) 993-3737  
Max Pitcher, Canadian Bomb Data Centre (613) 993-7880  
Aris Makris, Med-Eng Systems Inc. (613) 739-9646  
REPORT: No report

The Med-Eng EOD-7B, next generation bomb disposal suit and helmet, was developed with the assistance of the Canadian Bomb Data Centre (RCMP) and supported in part by the NRC/IRAP program. Project objectives include determination of optimum combination of energy absorbing materials and their relative positioning that will achieve effective blast overpressure protection to the wearer from incident and reflected waves. The new design features lighter more flexible ballistic materials for better fragmentation protection. Head protection has been enhanced against overpressure, fragmentation, impact and heat threats. The new streamlined futuristic helmet boasts superior electronics and communication features. The new system is also being considered for bomb disposal operations involving biochemical threats.

For additional information – Aris Makris, Med-Eng Systems Inc. (613) 739-9646.



### **Development of a Canadian Soft Body Armour Standard – Active**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
REPORT: No report

The Canadian General Standards Board (CGSB) is coordinating the drafting of a Canadian standard for daily personal use body armour. A draft standard has been accepted at the first ballot by the committee made up of approximately 35 members from all aspects of the manufacturing industry, the police community and the testing agencies. The US National Institute of Justice has participated as an observer on the committee. Currently a series of round-robin testing is being conducted by the five testing laboratories to verify that the methodologies and protocols as written will produce comparable results when identical samples are tested.

Concurrent efforts are underway to harmonize the Canadian activities with a similar draft standard being created in Europe (CEN) with the goal being to achieve an international standard under the International Standards Organization (ISO). As part of this cooperation work is being undertaken by the Canadian working group to test a draft protocol from the CEN group designed to measure the ergonomic “fit and feel” of daily wear personal use body armour.

Work is proceeding to design a test instrument to perform a reproducible multi-shot test. This test involves a series of three shots striking body armour in rapid succession and in close proximity and is designed to represent (but not simulate) shots from a submachine gun.

### **Drug Section Safety Cabinet – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: No report

Drug investigators may suffer inadvertent exposure to street drugs through operational requirements. A movable self-contained safety cabinet is under design to remove particulate materials and solvent vapours. In addition to providing a margin of safety for the investigator, it is designed to prevent contamination of exhibits. A custom-fabricated unit is undergoing field-trials in an operational drug section at RCMP Milton Detachment Drug Section. Evaluation is expected to be completed in 1998.



**Miniature Emergency Response Vehicle (MERV) – Concluded**



**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533

**REPORT:** No report

MERV was originally developed by Corporal Bill Axley, Special Services, RCMP, Regina, out of necessity for operational requirements. MERV is a miniature remotely controlled tracked robot with infrared pan and tilt camera(s), and Oleoresin Capsicum spray. This technology has been licensed to Terra Aerospace and the result is a “MERV family” consisting of Merv, Merlin and Predator.

For additional information, contact Terra Aerospace at 736-7974.



### **Nylon Duty Belt Evaluation – Active**

PROJECT MANAGER: Julie Graham, CPRC (613) 990-9533  
Al Pilon, RCMP Contract Policing (613) 993-8330  
REPORT: No report

Four different types of nylon duty belt systems (Bianchi, Gould & Goodrich, and two from Michaels of Oregon) are being evaluated, and compared to the leather duty belt system. A variety of criteria including comfort, durability, effectiveness and compatibility are being addressed. Field testing is expected to be completed in 1998 and a report will be issued.

### **Police Belt and Holster Study – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Daryl Knox, OPP Academy (705) 329-7435  
REPORT: TR-06-98 “Ontario Provincial Police Holster Committee Report 1998”

After successfully studying and evaluating the interaction between police uniform trousers and belts and coupled with the introduction of semi-automatic pistols, the Ontario Provincial Police and the Ontario Provincial Police Association studied a variety of holster and belt combinations. The result of their evaluation recommends implementation of the Safariland 070 SS III holster for use with their SIG P229 .40 cal. service pistol and “Uncle Mike’s” nylon duty belt.

### **Police Hats – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: TM-03-98 “Improvements to Police Forage Cap Design”

A consensus or solution to the police headgear issue of reducing the exposure to UV radiation has not surfaced although a number of groups internationally are addressing this problem. While the CPRC sponsored a national competition to examine the traditional police forage cap, no viable alternative was surfaced. Some improvements were suggested but it remains to be seen whether these warrant incorporation into current designs. Meanwhile, since a growing number of police agencies in Canada and elsewhere have opted for wide-brimmed headgear, CPRC is withdrawing from this endeavour.

### **Remote Wireless Explosives Disruptor Initiator – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Derick Ivany, Canadian Bomb Data Centre (613) 993-7880  
REPORT: No report

The RCMP ‘E’ Division Explosive Disposal Unit have developed, in conjunction with the Canadian Bomb Data Centre (CBDC), a small light weight transmitter/receiver system that can initiate explosive charges and fire disruptors from a remote command post without the use of a ground line. Current technology requires use of such a ground line, presenting a physical safety hazard and tactical disadvantage. CBDC is currently evaluating this prototype.



**Review of OC Spray – Active**

PROJECT MANAGER: John Arnold CPRC (613) 993-3737  
Nick Cartwright, CPRC (613) 998-6340  
Dr. Jeremy Brown, Health Services RCMP  
Dr. Joseph Ruddick, Health and Welfare Canada

REPORT: TM-08-98 “OC Spray – A Review of Its Possible Risks including Carcinogenicity”  
TM-01-98 “Comments on the Use of Capsaicin Spray”

As a result of continuing concerns surfacing in a variety of venues, a study was commissioned to review the current literature to identify any risks associated with operational use and specifically to determine how exposure to the spray measures up to the scientific criteria set to determine carcinogenicity. Concurrently, a similar review was being undertaken by Dr. C.S. Petty for the US National Institute of Justice. It is anticipated that it will be published in due course by NIJ.

**Smart-Gun Technology Evaluation – Active**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340

REPORT: No report

Efforts are continuing to “personalize” a weapon so that only the authorized user(s) can operate them. Fundamentally, all the approaches involve technology that requires a code to be supplied before the weapon can be fired. There are significant barriers to overcome before this technology could be considered for operational deployment. Colt Manufacturing is involved with a project to further develop technology prototypes developed by Sandia National Labs for the US National Institute of Justice.



**CATEGORY B**

**OPERATIONAL EFFECTIVENESS – FIGHTING CRIME, GATHERING INFORMATION, INTELLIGENCE AND EVIDENCE**

**Cockpit Voice Recorder Explosion Analysis Technique – Active**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
Howard Posluns Transportation Development Centre (514) 283-0034  
REPORT: No Report

This project, funded by the the Transportation Development Centre of Transport Canada, is to further develop and computerize the Cockpit Voice Recorder Explosion Analysis technique first proposed by Slingerland. The technique has been shown to be capable of discriminating between in-flight break-ups caused by structural failures versus those caused by an explosion from a bomb or a missile. A rapid and reliable method of determining the nature of an aircraft crash will allow for a better and more focussed response from the crash investigation and law enforcement communities.

**Drug Enforcement Technology Evaluation – Active**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
Julie Graham, CPRC (613) 990-9533  
Jean Auclair, RCMP Drug Enforcement Branch (613) 993-2124  
REPORT: No Report

A need was expressed for a monitoring/evaluation of new technologies that might have application to the operational needs of drug enforcement units, eg. drug detection systems designed for field use, Bulk detection, remote detection of drug related activities, etc.

The work being done by Revenue Canada Customs – looking at bulk detection of contraband in containers and trucks – is also being monitored.

**Emergency Equipment Mounting Bracket – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: TM-07-98 “Emergency Equipment Mounting Bracket”

A low-cost console bracket for mounting telecommunications and other emergency equipment has been deployed in police vehicles in British Columbia, resulting in substantial cost savings. For additional information, contact R.G. Johnson, RCMP Victoria Telecommunications Section (250) 474-1212.

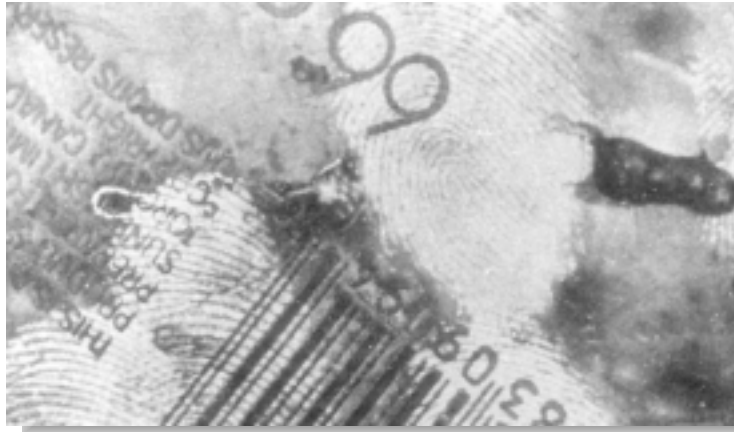
**Explosive Resistant Vehicle – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Steve Boos, (613) 993-8003  
REPORT: No report

In order to assess the performance of explosive resistant materials against anticipated threats, prototype vehicles have been constructed through a cooperative arrangement with a vehicle armoring manufacturer. As a result of successful performance, this technology is currently licensed for commercialization.



### **Fingerprint Research – Active**



**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533  
Dr. Della Wilkinson, RCMP Forensic Identification Research &  
Review Section (613) 998-9718

**REPORT:** TM-02-98E “Common Chemical Techniques Used for Latent Fingerprint  
Detection”  
TM-02-98F “Techniques Chimiques Courantes de Détection des Empreintes  
Digitales Latentes”

This is a joint venture between the Royal Canadian Mounted Police and the National Research Council Canada. One of the more important areas being researched by Dr. Wilkinson is the detection and visualization of fingerprints on human skin. Her work is progressing well. She continues to work in collaboration with the FBI and with the Chief Medical Examiner’s Office of the Commonwealth of Virginia.

In addition to the foregoing, Dr. Wilkinson lectures to Fluorescent Techniques Course candidates and to senior Forensic Identification specialists. She has established a listserv to facilitate exchange of information with other researchers.

For additional information, call Dr. Della Wilkinson.

### **Forensic Entomology Across Canada – Active**

**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533  
Dr. Gail Anderson, Simon Fraser University (604) 291-3589

**REPORT:** Training video available. A 23 minute video, produced by the Audio-Visual Unit of “E” Division Training, deals with the collection of entomological evidence.

In past years, Dr. Gail Anderson has completed projects involving the gathering of data relative to insect succession on carcasses from shallow graves. CPRC has committed some funding for further research in other climatic regions of Canada. Additional partner funding is being sought to permit completion of this research which will be of benefit to the entire Canadian police community. At the present time, studies are underway in Alberta and Manitoba. Planning continues for research in other regions of the country.

For additional information, call Dr. Gail Anderson.



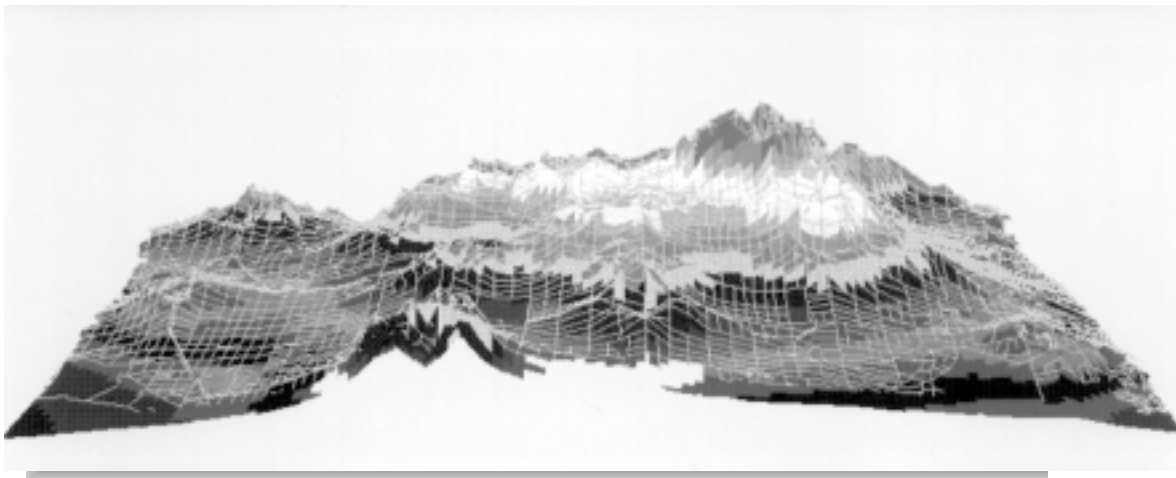


### **Forensic Entomology – Aquatic Research – Concluded**

**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533  
Dr. Gail Anderson, Simon Fraser University (604) 291-3589  
**REPORT:** TR-10-98 “Freshwater Invertebrate Succession and Decompositional Studies On Carrion in British Columbia”

Last year, a research project to address determination of time of death, by means of aquatic organism succession, for bodies disposed of in water was completed in British Columbia. The above report, the thesis of Ms. N.R. Hobischak, addresses that research.

### **Geographic Profiling – Active**



**PROJECT MANAGER:** John Arnold, CPRC (613) 993-3737  
Mr. Barry Dalziel, ECRI (604) 718-2060  
**REPORT:** No report

The company, ECRI, took a ‘hard coded’ computer software system that was specific to the Vancouver Police Department and developed, with the assistance of the National Research Council’s Industrial Research Assistance Program (NRC-IRAP), the geographic profiling product called “Rigel”, to be sold to other police agencies worldwide. Geographic Profiling was invented by Dr. Kim Rossmo, a detective in the Vancouver Police Department. ‘Rigel’ systematically assigns statistical probabilities which predict the most likely location of the offender’s residence.

The Ontario Provincial Police have purchased ‘Rigel’. There has been considerable interest from the USA, Europe, South Africa and Japan. This coming year, ‘Rigel’s’ functionality will be expanded by:

- adding additional map types as input (e.g. orthodigital photographs);
- providing an online hyperlink user/help capability;
- developing a training program for Rigel and Geographic Analysts;
- developing the ability to identify potential hunting areas of paroled offenders;
- moving ‘Rigel’ onto an Oracle database;
- developing a ‘better’ graphical user interface (GUI) for the users; and
- completing a Java based ‘Rigel’ system that will enable operating system independence.

For information on ‘Rigel’ contact Mr. Barry Dalziel at (604) 718-2050.



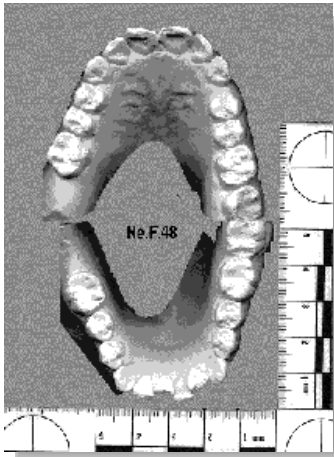
### Human Bite Mark Comparison – Concluded

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Dr. David Sweet, Bureau of Legal Dentistry, University of British Columbia  
(604) 822-8822

REPORT: TR-07-98 “Computer Assisted 2D and 3D Comparison of Bite Mark  
Evidence and Tooth Exemplars”

Research was completed by Dr. Sweet at the Bureau of Legal Dentistry (BOLD), University of British Columbia, to evaluate the application of recent developments in personal computer graphics for the preservation and analysis of human bite marks and, specifically, to develop protocols to share and electronically transmit data among other workers. This multi-phase project studied a series of bite marks and recorded them digitally, developed conventional two-dimensional overlays of dental casts, generated and compared three-dimensional digital models, and investigated transmitting digital images to co-workers for evaluation. Successful 2-D overlays were produced with off-the-shelf graphics software and transmitted via conventional modem to other workers. Three-dimensional digital models proved more of a challenge and were deemed to be not practical with currently available off-the-shelf software.

### Incidence of Human Bite Marks in a Selected Adult Population – Concluded



PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Dr. David Sweet, Bureau of Legal Dentistry,  
University of British Columbia (604) 822-8822

REPORT: TR-08-98 “Incidence of Human Bite Marks in a Selected Adult Population”

Prior to this study, no information existed to assist police investigations or support the testimony of odontologists concerning the incidence, frequency, or severity of this form of physical evidence. Dr. Sweet studied the incidence and severity of bite mark injuries to victims of violent crimes with the following results:

1. bite mark injuries occurred in 16% of domestic violence situations;
2. the vast majority of victims are women (93%) with the highest incidence in the 20-40 year age group;
3. injuries to the head and neck were the most frequent (42%) with contusions being the most common (47%).



**International Colour Code System – Active**

PROJECT MANAGER: Julie Graham, CPRC (613) 990-9533  
Rod Davis, Calgary Police Service (403) 295-7953  
REPORT: No report

A pocket-sized, very comprehensive system of colour identification has been developed to assist law enforcement personnel and community support groups to accurately transmit colour sensitive information. The system is being evaluated and a report will be issued on completion of the field test.

For additional information, contact Rod Davis.

**Matching Feet to Footwear – Active**

PROJECT MANAGER: Julie Graham, CPRC (613) 990-9533  
Bob Kennedy, RCMP Forensic Identification Research & Review Section  
(613) 990-9086  
REPORT: No report

This is a continuing research project. Data continues to be collected in order that the theory of identifying feet to footwear can be scientifically supported. Carleton University professors have been contracted to review the data for this purpose.

For additional information, call Bob Kennedy.

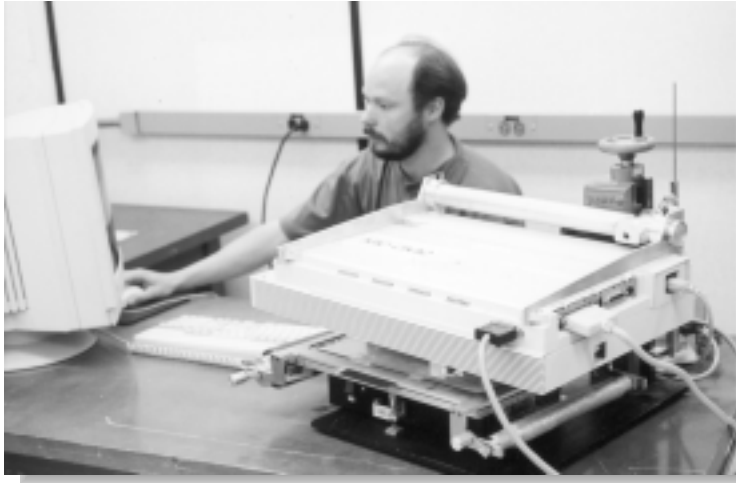
**Microwave Audio/Video Transmitter/Receiver System – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Dave Veitch, Toronto Police Service (416) 324-0600  
REPORT: TM-04-98R “Prototype Audio/Video Transmitter/Receiver”

Due to the sensitive nature of this project information may be obtained directly from the above.



### **Micro-inspection – Concluded**



**PROJECT MANAGER:** John Arnold, CPRC (613) 993-3737  
**REPORT:** TM-20-95 “D-Sight Micro-inspection Technology”  
TM-21-95 “Micro-inspection Technology”  
TM-05-98 “Edge of Light Operational Assessment”

This project involves the “Edge of Light” (EOL), a technology invented by the Institute of Aerospace Research (IAR) at the National Research Council. EOL technology is useful in visually inspecting surfaces for small imperfections that might be of interest to the police identification officer. Initial trials have indicated some success relative to counterfeit money, passport forgery, altered credit cards, document examination and oil painting authentication.

This year, the EOL system was operationally assessed by the RCMP Central Forensic Laboratory and the Revenue Canada Laboratory. This coming year, as a result of the assessments, the system is being fine tuned to address the assessors’ suggested improvements.

### **Multicultural Communication Awareness for Police Officers – Concluded**

**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533  
John Kaster, Canadian Police College (613) 998-0886  
**REPORT:** TR-09-98 “Multicultural Communication Awareness for Police”

The CPRC, the Canadian Police College and the Centre for Race Relations funded a research study on improved communication between police officers and selected cultural groups. As a result of the study, a number of recommendations concerning the improvement of community/police rapport were made.

### **PAN Disrupter – Active**

**PROJECT MANAGER:** Julie Graham, CPRC (613) 990-9533  
Steve Ethier, Canadian Bomb Data Centre (613) 993-7880  
**REPORT:** No report

In the previous year, evaluation of a new PAN disrupter, developed by Sandia National Laboratories, in the USA, was begun. It was not possible to complete the evaluation in the anticipated time frame. It is now expected that the evaluation will be completed in the summer of 1998.

For additional information, please call Steve Ethier.



**Public Safety Network (Formerly CPRCnet) – Active**



**Front Row: L. to R. G. Carroll, J. Arnold, T. Murray**  
**Back Row: L. to R. J. Graham, J. Evans, N. Cartwright, J. Kerr**

**PROJECT MANAGER:** Jamie Kerr, CPRC (613) 993-2073  
**REPORT:** No report

The Public Safety Network (PSN) is an umbrella organization, which on behalf of its partners and supporters, provides Internet capabilities which focus on the provision of services to law enforcement agencies and community based policing organizations. PSN is supported by the Canadian Association of Chiefs of Police (CACP), the Canadian Police College (CPC), the Canadian Police Research Centre (CPRC), CopNet (a popular grass-roots law enforcement web site), the Edmonton Police Service, Centralized Training of the Royal Canadian Mounted Police and the Canadian Institute for Scientific & Technical Information of the National Research Council of Canada.

As an umbrella organization, the Public Safety Network on behalf of its partners and supporters, provides secure Internet services to both law enforcement agencies and their employees. These Internet services are also made available to community based public safety organizations. The Canadian Police Research Centre, through these services, provides secure access to its police research and development information. The Canadian Association of Chiefs of Police, through these services, provides Internet list servers to all of the members of its many internal committees. Some of the other services provided are a Computer Investigators Discussion List, an International Crime Stoppers Web Board, several research related communication areas and a Internet platform for the Police-Futures Group. All existing Internet services are described on the Canadian Police Research Centre's Internet Web Page, which can be found at

**<http://www.cprc.org>**



### **Shift Scheduling Software Evaluation – Concluded**

**PROJECT MANAGER:** John Arnold, CPRC (613) 993-3737  
Harry Dollard, InTime Solutions 1-800-315-1755  
**REPORT:** No report

The project objective is to operationally evaluate “Watch Commander”, a low cost piece of software for police shift scheduling developed by InTime Solutions, Burnaby, British Columbia. This software tool assists in scheduling and planning by allowing the user to interactively change off days and shift rotations thereby giving better coverage. It guarantees to reduce scheduling time, reduce overtime and better utilize personnel.

### **Speech Recognition – Active**



**PROJECT MANAGER:** John Arnold, CPRC (613) 993-3737  
Nigel Moore, Waterloo Regional PS (519) 653-7700, Ext. 713  
Oleg Feldgajer, International Neural Machine  
(519) 746-3890 Ext. 24  
**REPORT:** No report

Waterloo Regional Police Service (WRPS) proposed this speech recognition project. WRPS presently have their police officers phone in their police reports to a recording system. Civilian operators transcribe the reports that are then proofed and keyed into their computer records system. The objective of this project is to input the telephoned report directly into the computer.

International Neural Machine (INM) of Waterloo determined that the concept was feasible especially when there was a large number of police officers talking to the computer. INM have submitted, to NRC/IRAP, a proposal to develop a prototype system. On approval, work can then proceed and it is anticipated that a full report will be available by April 1999.



### **Use of Force Training Simulators Evaluation – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: No report

A working group has been formed, at the request of the Human Resources Committee of the Canadian Association of Chiefs of Police, to address two main issues:

- to collect and collate data and features of commercially available systems;
- to study the pedagogical basis for simulator training.

The first deliverables from this committee are expected this year.

### **Visual Presenter – Active**

PROJECT MANAGER: John Arnold, CPRC (613) 993-3737  
Rick Devine, Guelph Police Service (519) 824-1212, Ext. 207  
David Craig, ELMO Corp. (905) 453-7880  
REPORT: No report

Guelph Police Service (GPS) Identification Office proposed this project as it had demonstrated cost savings, not only to the GPS, but also to the courts. The technique of visual presentation is especially useful in major fraud cases where there is a substantial number of visual exhibits. GPS Officers Devine and Brown published an article in Canadian Identification, January, 1998 – “Who needs a darkroom when there’s ELMO”.

The three main objectives of this project are to increase awareness as to cost effectiveness, to document, analyze and compare costs between current court procedures and this visual presentation technology and to determine cost effectiveness in different jurisdictions.

Several Canadian jurisdictions have been approached to participate and it is anticipated that a report detailing their experiences will be published in April 1999.

### **911HELP – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
REPORT: No report

Inexpensive software, 911HELP, is commercially available and was developed for logging calls and dispatching assistance in response to 911 emergency calls. The software is intended for small to medium-sized police agencies as a low cost solution to what might be otherwise cost prohibitive. Due to personnel changes, the previous evaluation had to be terminated but is being reactivated this year.



## ***CATEGORY C***

### **PROTECTING THE PUBLIC – TRAFFIC, CUSTODY, CRIME PREVENTION**

#### **CACP Website – Concluded**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Brian McConnell, Canadian Association of Chiefs of Police  
(613) 233-9551

REPORT: No report

At the request of the Internet Sub-Committee of the Canadian Association of Chiefs of Police (CACP) Informatics Committee, the CPRC has assisted by implementing a homepage as well as Internet-based mailing lists and conference board capabilities. See the Public Safety Network (PSN) report elsewhere in this publication or visit the site at <http://www.cacp.org>.

#### **Evaluation of Vehicle Stopping Device – ROADSPIKE™**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
Dave Reichert, British Columbia Justice Institute (604) 528-5758  
Bob Steele, PMG Manufacturing Group (304) 277-4050

REPORT: No report

RoadSpike is a retractable spiked barrier strip, containing hollow spikes, that police can deploy across a road ahead of a fleeing vehicle to safely deflate its tires. Because the spikes are retractable with remote activation and retraction, it allows for the normal flow of traffic ahead and behind the target vehicle and spares the tires of pursuing law enforcement vehicles. It was developed as a project from the National Institute of Justice by the Idaho National Engineering Laboratory and has been commercialized by PMG Manufacturing Group. A demonstration unit was made available for an evaluation conducted at the British Columbia Justice Institute as part of an overall review of stopping devices and high speed pursuit strategies. A video demonstrating the functioning of RoadSpike is available from the company.

#### **Less-than-Lethal Technologies – Mock Prison Riot**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
Al Pilon, RCMP Contract Policing (613) 993-8330

REPORT: No report

In April 1998, CPRC participated as an observer at a mock prison riot staged by NIJ's Office of Law Enforcement Technology Commercialization at an abandoned prison in West Virginia. It was a showcase for developed and developing less-than-lethal technologies and their application or operational protocols.





**Less than Lethal Technology – Ring Airfoil Projectile – Active**

PROJECT MANAGER: Nick Cartwright, CPRC (613) 998-6340  
Dr. Ray Downs, NIJ (202) 307-0646  
Lt. Col. Matt Begert, USMC (505) 678-7241  
REPORT: A video was made of the demonstration

The Ring Airfoil Projectile was developed by the US military (as the Ring Airfoil Grenade) more than twenty years ago but was never actually deployed. It is characterized by a very flat flight trajectory due to its aerodynamic shape and very high spin velocity and also by its low muzzle velocity, which means it is less-than-lethal at the muzzle. The US National Institute of Justice has undertaken a project to update this technology and evaluate its application to civil law enforcement including its ability to be an accurate delivery system for OC spray or CS. With the cooperation and participation of Lt. Col. M. Begert, USMC, a demonstration of the technology was arranged in conjunction with CPRC's Technology Development Advisory Council meeting in Ottawa. A video was made of the demonstration and CPRC continues to monitor, with NIJ, the developments from this project.

**Security Upgrade of Windows – Active**

PROJECT MANAGER: Glenn Carroll, CPRC (613) 998-6341  
Larry Blanchette, RCMP Engineering Branch (613) 991-4989  
REPORT: No report

Evaluation of current commercially available glazing materials including security films, against simulated sledge hammer attack has been proposed. Staff reductions have precluded progress on this evaluation, however consideration is being given to proceeding by way of outsourced testing. If so, the project will be reactivated.



## ***TECHNICAL REPORTS and MEMORANDUMS***

This section lists all the “*Technical Reports*” and “*Technical Memorandums*” that the CPRC has published since 1992. A “*Technical Report*” is defined as a document containing scientific and technical information considered important, complete and a lasting contribution to existing knowledge. A “*Technical Memorandum*” is defined as a document containing scientific and technical information less broad in scope but nevertheless of importance as a contribution to existing knowledge.

### **1998 TECHNICAL REPORTS**

- TR-01-98E “Vision Standards in the RCMP: Are They Reasonable and Fair?”, M. Easterbrook, M.D., J. Brown, M.D., E.J. Casson, Ph.D., G.A. Wells, Ph.D. and A. Trottier, M.D., December 1996
- TR-01-98F «Normes visuelles de la GRC : Sont-elles raisonnables et équitables?», M. Easterbrook, M.D., J. Brown, M.D., E.J. Casson, Ph.D., G.A. Wells, Ph.D. et A. Trottier, M.D., Decembre 1996
- TR-02-98E “To Wear or Not To Wear: A Survey on Current Contact Lens Use in the Royal Canadian Mounted Police”, G.A. Wells, Ph.D., J. Brown, M.D., E.J. Casson, Ph.D., M. Easterbrook, M.D. and A. Trottier, M.D., December 1996
- TR-02-98F «Sondage sur le port des verres de contact à la Gendarmerie royale du Canada (GRC)», Wells, Ph.D., J. Brown, M.D., E.J. Casson, Ph.D., M. Easterbrook, M.D. et A. Trottier, M.D., Decembre 1996
- TR-03-98 “Lead Shot Penetration in 10% Ordnance Gelatin”, Dean B. Dahlstrom, Kramer D. Powley and Duncan MacPherson, September 1995
- TR-04-98 “Physical Ability, Fitness and Police Work”, Jean Bonneau, M.Sc. And Jeremy Brown, M.D., July 1995
- TR-05-98E “Violent Incidents”, Donald J. Loree, Ph.D., Community, Contract and Aboriginal Police Services, Royal Canadian Mounted Police, April 1995
- TR-05-98F «Incidents Violents», Donald J. Loree, Ph.D., Services communautaires, contractuels et autochtones, Gendarmerie Royale du Canada, avril 1995
- TR-06-98 “Ontario Provincial Police Holster Committee Report, Sgt. Daryl Knox, Ontario Provincial Police Academy, 1998
- TR-07-98 “Computer Assisted 2D and 3D Comparison of Bite Mark Evidence and Tooth Exemplars”, Dr. David Sweet, Bureau of Legal Dentistry, University of British Columbia, 1998
- TR-08-98 “Incidence of Human Bite Marks in a Selected Adult Population”, Dr. David Sweet, Bureau of Legal Dentistry, University of British Columbia, 1998
- TR-09-98 “Multicultural Communication Awareness for Police”, David Keyes, Research Contractor, Canadian Police College, March 1998
- TR-10-98 “Freshwater Invertebrate Succession and Decompositional Studies on Carrion in British Columbia”, Niki Hobischak, Simon Fraser University, November 1997
- TR-11-98 “Penetration of Exterior House Walls by Modern Police Ammunition”, R.W. Schiefke, Firearms Section, Forensic Laboratory Vancouver, October 1997



## 1998 TECHNICAL MEMORANDUMS

- TM-01-98 “Comments on the Use of Capsaicin Spray”, Jeremy Brown, M.D., Health Services Directorate, Royal Canadian Mounted Police, June 1997
- TM-02-98E “Common Chemical Techniques Used For Latent Fingerprint Detection”, Dr. Della Wilkinson, Forensic Identification Research and Review Section, Royal Canadian Mounted Police, October 1997
- TM-02-98F «Techniques chimiques courantes de détection des empreintes digitales latentes», Della Wilkinson, La Section des recherches et des études de l’identité, Gendarmerie Royale du Canada, Octobre 1997
- TM-03-98 “Improvements to Police Forage Cap Design”, Glenn Carroll, CPRC, 1998
- TM-04-98R “Prototype Audio/Video Transmitter/Receiver”, **Restricted**, Detective Dave Veitch, Toronto Police Service, 1998
- TM-05-98 “Edge of Light Operational Assessment”, M. Marc Brosseau, Central Forensic Laboratory, RCMP and Ms. Catherine Gilmour, Revenue Canada, 1998
- TM-06-98 “Ampel Probe Evidence Collection Device”, Glenn Carroll, CPRC, 1998
- TM-07-98 “Emergency Equipment Mounting Bracket”, Glenn Carroll, CPRC, 1998
- TM-08-98 “OC Spray – A Review of Its Possible Risks including Carcinogenicity”, Dr. J. Ruddick, Health and Welfare Canada
- TM-09-98 “Communicable Diseases Standards – Ontario Policing Standards Manual”, Julie Graham, CPRC, 1998

## PREVIOUS TECHNICAL REPORTS

### 1997

- TR-01-97 “Evaluation of Gun Lubricant Operation At Low Temperatures”
- TR-02-97E “Risk to Police Officers From Biohazards Encountered in Police Work”
- TR-02-97F «Les risques biologiques du métier de policier»
- TR-03-97E “Physical Ability, Fitness and Police Work”
- TR-03-97F «Aptitudes et condition physiques des policiers»
- TR-04-97E “Occupational Medicine for Policing”
- TR-04-97F «La médecine du travail dans le domaine policier»
- TR-05-97E “Assessing Cardiac Risks in Police Officers”
- TR-05-97F «Évaluation des risques de cardiopathie chez les policiers»
- TR-06-97E “Occupational Health in Police Work: A Canadian Perspective”
- TR-06-97F «La médecine du travail en milieu policier une perspective canadienne»
- TR-07-97E “Respiratory Symptoms Among Forensic Identification Workers”
- TR-07-97F «Les symptômes respiratoires chez les techniciens de l’identité judiciaire»
- TR-08-97 “Evaluation of Water Soluble Evidence Collection Adhesive Tape”
- TR-09-97 “Aquatic Forensics – Determination of Time Since Submergence Using Aquatic Invertebrates”
- TR-10-97 “Results from the FBI Collaboration on the Detection of Fingerprints from Human Skin”
- TR-11-97 “Investigaide B&E, A Break and Enter Expert System”
- TR-12-97 “C.L.E.I.M.S. Canadian Law Enforcement Information Management System, A Major Case Management System”
- TR-13-97 “Radar Health and Safety Study – Executive Summary of TR-14-97”
- TR-14-97 “Radar Health and Safety Study – Complete Epidemiology Report”



## 1996

- TR-01-96 “Directed Studies: A Focused Approach to Collision Investigation”
- TR-02-96 “Forensic Entomology – Determining Time of Death in Buried Homicide Victims Using Insect Succession”
- TR-03-96 “Forensic Entomology – The Use of Insects in Death Investigations To Determine Elapsed Time Since Death In Interior and Northern British Columbia Regions”
- TR-04-96 “Advanced Scientific Research For A New Europium Based Fluorescent Dye”
- TR-05-96 “Advanced Scientific Research – Innovations in Cyanoacrylate Stain Technology”
- TR-06-96R “Coarse Focus Soft Shaped Charge Disrupter – 1996 Update” – **Restricted**

## 1995

- TR-01-95 “Comparative Performance of 9mm Parabellum, .38 Special and .40 Smith and Wesson Ammunition in Ballistic Gelatin”
- TR-02-95 “Deenside Protective Equipment”
- TR-03-95 “Comparative Analysis of Lead, Barium and Antimony Emission from Handgun Ammunition”
- TR-04-95 “Oleoresin Capsicum in Buffalo”
- TR-05-95 “Forensic Entomology – The Use of Insects in Death Investigations to Determine Elapsed time since Death”
- TR-06-95 “Exposure and Health Status of Canadian Law Enforcement Personnel Associated with Identification Procedures”
- TR-07-95 “A Comparison of Techniques for the Visualization of Fingerprints on Human Skin including the Application of Iodine and α-Naphthoflavone”

## 1994

- TR-01-94 “Evaluation of the Exposé System”
- TR-02-94 “L’ évaluation du système exposé”
- TR-03-94 “Mobile Computer Workstation – Minimum Standards for Police “
- TR-04-94 “Mobile Computer Workstation – Common Police Requirements”
- TR-05-94 “Mobile Computer Workstation – Technology Developments and Industry Product Review”
- TR-06-94 “Mobile Computer Workstation – Future Trends and Technology Developments”
- TR-07-94 “Polygraph Validity Study – Final Report”
- TR-08-94 “A Comparison of Thenoyl Europium Chelate with Ardrox and Rhodimine 6G for the Fluorescent Detection of Cyanoacrylate Prints”
- TR-09-94 “Protective Equipment”
- TR-10-94 “Extendible Baton Study”
- TR-11-94 “Bomb Suit Helmet Evaluation”
- TR-12-94 “Render Safe Procedures”
- TR-13-94 “A Comparison of Three Forensic Light Sources: Polilight, Luma-lite and Spectrum 9000”



## 1993

TR-01-93	“Evaluation of Portable Contraband Detector Portable Microwave Dielectrometer M600P”
TR-02-93	“A Toxicological Review of Capsaicinoids (Oleoresin of Capsicum)”
TR-03-93	“Explosive Detection Security System (EDSS) Test and Evaluation”
TR-04-93	“Data Element Standards for Police Information Systems”
TR-05-93	“Fingerprints on Skin”
TR-06-93	“Automated Vehicle Location (AVL)”
TR-07-93	“Residential Break and Enter Expert System”
TR-08-93	“IMS Signal Processing”
TR-09-93R	“9MM Ammunition for Fisheries and Oceans Operational Use”, <b>Restricted</b>
TR-10-93R	“Detection of Illicit Vegetation”, <b>Restricted</b>
TR-11-93	“T.E.C. – A New Fluorescent Fingerprint Dye”
TR-12-93	“Ottawa Police Strategic Information Management System”

## PREVIOUS TECHNICAL MEMORANDUMS

### 1997

TM-01-97	“Hot Meal™ Evaluation”
TM-02-97	“Electronic Drug Detection Equipment “
TM-03-97	“Nooklooker Evaluation”
TM-04-97	“Body Cam Evaluation”
TM-05-97	“Liquid Chalk Evaluation”
TM-06-97	“Barefoot Comparison and Identification Research”
TM-07-97E	“Mobile Portable PC Prototype Project”
TM-07-97F	«Prototype de micro-ordinateur Mobile»
TM-08-97	“Warthog Evaluation – Stop a High Speed Pursuit Before it Begins
TM-09-97	“Micro-Inspection Technology Update 1997”

### 1996

TM-01-96	“1995 Duty Belt and Uniform Pant Evaluation”
TM-02-96	“3D Eyewitness”
TM-03-96	“Collection of Evidence From Heavy Commercial Vehicle Incidents”
TM-04-96	“Rapport final du projet pilote sur l’utilisation du Capsicum”
TM-05-96R	“Mobile Portable PC Prototype Project”, <b>Restricted</b>
TM-06-96	“Spatial and Temporal Crime Analysis Techniques”
TM-07-96R	“Evaluation of the XR-150 Portable X-Ray Generator”, <b>Restricted</b>
TM-08-96	“Barefoot Comparison and Identification Research”
TM-09-96	“Regina Police Service Citizen Police Academy”



- TM-10-96R “Canadian Bomb Data Centre Automated Database”, **Restricted**
- TM-11-96 “Lightman”
- TM-12-96 “Field Evaluation Report of inCHARGE System”

**1995**

- TM-01-95 “Velohorn”
- TM-02-95 “Crowd Control Suit With Integrated Protection”
- TM-03-95 “Bonowi® Protective Equipment”
- TM-04-95R “Evaluation of Buster K910B Contraband Detector”, **Restricted**
- TM-05-95 “Officer Protection Kits”
- TM-06-95R “Blast Suppression Foam”, **Restricted**
- TM-07-95 “Managing Technology in the Edmonton Police Service”
- TM-08-95R “Development of a Robot Arm”, **Restricted**
- TM-09-95 “Impact Loading Tests for Upgrading the Security of Existing Windows”
- TM-10-95 “MR-35 Punch Gun”.
- TM-11-95R “Dual Tone Multi Frequency Controller”, **Restricted**
- TM-12-95 “Barefoot Comparison and Identification Research”
- TM-13-95 “Development of a New Europium Based Fluorescent Dye”; “Development of TEC for Detection of Cyanoacrylate Prints on Skin”; “Use of Tectopo for Cocaine Exhibits”; “Communication of Research Information to Police”; “Testing New Cyanoacrylate Glue”; “Testing of Minicrimescope”
- TM-14-95R “Track Drive for Bomb Robot”, **Restricted**
- TM-15-95R “The Study of Interference Suppression for Surface Wave Radar”, **Restricted**
- TM-16-95R “Mobile Disruptor Transporter”, **Restricted**
- TM-17-95R “Miniature Emergency Response Vehicle (MERV)”, **Restricted**
- TM-18-95R “Evaluation of the EXPOSÉ System for Audio Interception”, **Restricted**
- TM-19-95 “Alternate Patrol Headgear”
- TM-20-95 “D-Sight™ Micro-Inspection Technology”
- TM-21-95 “Micro-Inspection Technology”
- TM-22-95 “Evaluation of Auto-Kill Switch”
- TM-23-95 “Use of Tectopo for Cocaine Exhibits; Communicating Research Results to Police; Miscellaneous”
- TM-24-95 “Kevlar Under gloves”

**1994**

- TM-00-94E “Technical Reports and Memorandums from 1990 to 1993”
- TM-00-94F “Rapports technique et documents technique
- TM-01-94 “Break and Enter Expert System 1994 Progress Report”
- TM-02-94 “London Police Automated Charge Sheet System”



- TM-03-94 “CONTACT – Computer Delivery of Community Services Information in the Sault Ste. Marie Police Service”
- TM-04-94 “Police Research Databases”
- TM-05-94 “Accident Investigation - Dragsled”
- TM-06-94 “Fingerprint Research Progress 1993”
- TM-07-94 “Winnipeg Police Evaluation of In-Car Video”
- TM-08-94 “An Electronic Flare for the Police Traffic Officer”
- TM-09-94 “Nooklooker – A device to look in hard to reach places”
- TM-10-94 “Semi-automatic Pistol and Ammunition Study”
- TM-11-94 “Evaluation of Pepper Spray for the Winnipeg Police Department”
- TM-12-94 “Railway Evaluation of Emergency Alert”
- TM-13-94 “Protective Clothing for Hazardous Spills”
- TM-14-94 “Toxic-Free Ammunition – Ballistic Evaluation”
- TM-15-94 “Articulating Robot Arm”
- TM-16-94R “Remote Disruptor Transporter”, **Restricted**
- TM-17-94R “Miniature Emergency Response Vehicle (MERV)”, **Restricted**
- TM-18-94 “38 Special +P Police Ammunition”
- TM-19-94E “Oleoresin Capsicum Spray”
- TM-19-94F “Capsicum Oléorésineux”
- TM-20-94 “Forensic Entomology Study”

**1993**

- TM-01-93 “Proposed New Patrol Jacket”
- TM-02-93 “Protective Coat for Riot Troop Members (S.T.A.R. Vest)”
- TM-03-93 “Evaluation of Personal Cooling System – Explosive Ordnance Disposal Suits”
- TM-04-93 “Explosive Detection Security System (EDSS) Test and Evaluation”
- TM-05-93 “Tactical Troop Protective Equipment”
- TM-06-93 “Blauer Two Piece Jacket and Pants”
- TM-07-93 “Technology Platforms”
- TM-08-93R “Panic Alarm System Evaluation”, **Restricted**
- TM-09-93 “Cyclop Video System”
- TM-10-93 “Law Enforcement Television Network Evaluation”
- TM-11-93 “Integrated Information Strategy for the Canadian Police Community”
- TM-12-93 “Vancouver Police In-Car Video Evaluation”
- TM-13-93 “Video Image Booking System”
- TM-14-93 “Vacuum Fingerprint Chamber Evaluation”
- TM-15-93 “Vacuum Metal Deposition Chamber”
- TM-16-93 “Quick Don Gas Mask”
- TM-17-93 “Police Shield Video Camera System”



- TM-18-93 “Two-Piece Integrated Riot Suit”
- TM-19-93 “Gore-Tex Lined Sweater Evaluation”
- TM-20-93 “Electronic Measuring Device”
- TM-21-93 “Chemical Exposure and Health Status of Identification Personnel”
- TM-22-93 “Guideline for Evaluating the Potential Health Effects of Long-term Use of Radar Units on Police Traffic Officers”

**1992**

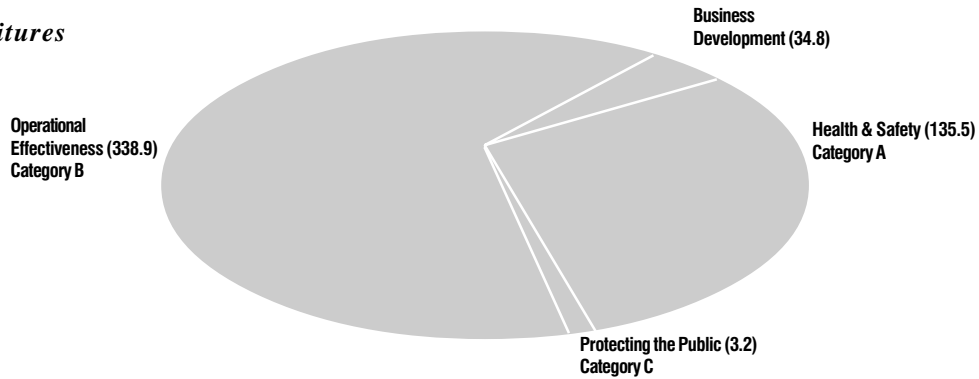
- TM-01-92R “Summary Memorandum of Communications Protocol for Police Information Systems”,  
**Restricted**
- TM-02-92 “Evaluation of ST-1000 Safety Lights”
- TM-03-92 “Alternative to Emergency Flares”
- TM-04-92 “Evaluation of In-Car Video System”
- TM-05-92 “Radiation Measurements on Police Traffic Radar Speed Detectors”





**CANADIAN POLICE RESEARCH CENTRE  
1997-98 FINANCIAL REPORT**

**Expenditures**



**Direct Project Dollars (All figures x \$1,000.00)**

Sources	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
RCMP	391.9	543.4	477.8	355.0	477.6	257.7*
NRC - Lab	59.7	62.3	47.7	34.5	80.5	69.2
NRC - IRAP	250.0	215.3	31.1	147.0	200.0	52.0
DND	n/a	50.0	50.0	50.0	0.0	0.0
<b>TOTAL</b>	<b>701.6</b>	<b>871</b>	<b>606.6</b>	<b>553.1</b>	<b>758.1</b>	<b>378.9</b>

\* mid year freeze on RCMP funding

**Other Project Resources (In-Kind Funding, Value Added, etc)**

	1994/95	1995/96	1996/97	1997/98
RCMP Managed	2196.0	3581.5	1067.9	1193.5
NRC Managed	1499.0	823.2	559.3	208.4
<b>TOTAL</b>	<b>3695.0</b>	<b>4404.7</b>	<b>1627.2</b>	<b>1401.9</b>

**TOTAL PROGRAM VALUE – \$1780.8**



### *New International Agreement*



(The Honourable Andy Scott, Solicitor General of Canada (right) and the Honourable Jack Straw, United Kingdom Home Secretary (left) at the signing of the MOU, April 1998)

On the 7 April 1998, the Solicitor General of Canada signed, on CPRC's behalf, a Memorandum of Understanding (MOU) for scientific and technical cooperation with the United Kingdom Home Office's Police Scientific Development Branch (PSDB). The signing ceremony was held in London, England, at the Office of the UK Home Secretary who signed on behalf of PSDB. This MOU is aimed at enhancing the significant level of cooperation that has existed between the two agencies and is in alignment with the bilateral agreement on Technical and Scientific Cooperation signed by the two Prime Ministers and initiatives undertaken with the G7/P8 countries.



## ***PUBLIC SAFETY NETWORK (PSN)***

Previously in CPRC annual reports, the Public Safety Network has been mentioned as a systematic process to assist the Canadian law enforcement community by distributing police technology information quickly and efficiently through the growing capabilities of computer communication.

This original concept has advanced and is now concentrating on the many and varied capabilities offered by the Internet not the least of which is the low cost and international reach. This has meant that a number of Internet capabilities, such as Home or Web pages, Web Boards, Usenet Groups, Discussion List Servers and Chat Rooms have been made available and are now being used to benefit law enforcement and public safety oriented community groups. In addition, these Internet platforms and capabilities have allowed the testing and use of distance education, specialized discussion groups for advanced research projects and specialized operational discussion groups. These capabilities allow the members of the various PSN groups to quickly and easily transmit and share documents and information without regard to distance, time zones or communication costs. PSN also provides a platform to carry out and experiment with other capabilities which may prove to be beneficial to law enforcement and community based organizations throughout Canada and the world.

PSN's examination of law enforcement communication capabilities also includes the auditing of existing law enforcement systems currently operating in the United Kingdom and the United States, with the intention of sharing law enforcement services between all three countries. PSN is also involved in a large mutually cooperative project with the United States Department of Justice to develop complete training packages for investigators working within the higher technology crime arena. These training programs, which are being developed by experts from both sides of the border, will be shared with all Federal, Provincial and Municipal law enforcement agencies in Canada. These packages will hopefully be made available at little or no cost.

The Canadian Police Research Centre and the Public Safety Network are always interested in discussing your ideas for innovative and cost effective methods providing needed services to law enforcement.

The following Public Safety Network partners have Internet Home Pages providing additional information:

- CACP – Canadian Association of Chiefs of Police – <http://www.cacp.org>
- CPC – Canadian Police College – <http://www.cpc.gc.ca>
- CPRC – Canadian Police Research Centre – <http://www.cprc.org>
- CopNet – <http://www.cop.net>
- Edmonton Police Service – <http://www.gov.edmonton.ab.ca/police/service.html>
- CISTI – Canadian Institute for Scientific & Technical Information of the National Research Council of Canada – <http://www.cisti.nrc.ca/cisti./cisti.html>
- RCMP's Learning & Development – <http://www.rcmp-learning.org/ecdp.htm>



## ***TECHNOLOGY PARTNERS***

“Technology Partners” are best described as a systematic humanitarian process for reviewing new police research ideas, products (actual and proposed), and the evaluation of technology within Canadian police agencies. After years of dealing with the Canadian police community on many research and development issues, it was suggested that the Technology Partner approach be implemented to foster and strengthen police research and development.

The CPRC receives many requests from industry concerning new and proposed products or new technological ideas that might benefit the police community. As well, there are many technological requests from the police community. To action these requests, the “product or idea” must be operationally evaluated by the police community, ie does it serve a police need, make the job easier, more effective and more cost efficient. The CPRC sends it, on receipt, to a “*Technology Partner*” in a police agency, who in turn circulates the idea within their Department to get an operational opinion. This opinion is returned to the CPRC who decide its course of action.

In the case of a new prototype product, which might be the product of research or an idea from industry, the CPRC will want an operational opinion on its effectiveness. Most often these new ideas are in the form of a single prototype. The CPRC would canvas the “*Technology Partner*” to solicit evaluators who are interested in testing a prototype. If the CPRC is able to get a number of departments to evaluate the product, then they would have a corresponding number of pre-production prototypes made and sent for evaluation under a criteria that is set by the CPRC and industry. A report is then written by the department and submitted to the CPRC addressing each of the criteria thus enabling industry to fine tune their product and thereby provide a better final product. The evaluation of a new product is an iterative process which, in the end, provides a new and better device to the police community from industry and the CPRC program.

Of prime importance in the “technology partner” implementation is the participation of the NRC-IRAP. IRAP participation will be encouraged in all regions of Canada by having the regional IRAP Industrial Technology Advisor (ITA) interact with their local police department. As can be seen earlier in this report, the IRAP ITAs are responding positively to the CPRC TPA network.



TECHNOLOGY PARTNER ASSOCIATES

Table with 4 columns: POLICE SERVICE, TPA CONTACT, PHONE #, FAX #. Lists various police services and their contact information.



### *Technology Development Advisory Council (TDAC)*

The 1997 a TDAC meeting was hosted by the Canadian Police Research Centre at the National Research Council, Ottawa on October 2nd - 3rd, 1997.

TDAC is a forum developed by the Canadian Police Research Centre, comprising law enforcement and security organizations. TDAC is an environment where one can table proposed Research and Development (R&D) projects that may have interest and application in a broader law enforcement community. Today, it is inefficient for single organizations to strive to do research in isolation when such research may have application in other areas. TDAC members continue to benefit by:

- sharing and assessing R&D proposals of possible interest,
- accessing current CPRC technology opportunities,
- membership as a CPRC technology partner associate (CPRC-TPA)
- being a member of PSN, an electronic information sharing network
- receiving current CPRC technical memorandums and reports

TDAC Members attending the most recent meeting were:

Mr. Dennis Kelly,  
Nova Scotia Department of Justice

Lt. Col. John Dick,  
CD National Defence Headquarters

Major Mark Roberts,  
DPM PC3 Department of National Defence

Capt. Shawn Ferguson,  
Canadian Forces School of Intelligence and Security

Major Jim Legere,  
Canadian Forces School of Intelligence and Security

Sgt. Ralph Luppe,  
Canadian Forces School of Intelligence and Security

Capt. Sylvaine Gagné,  
National Defence

Mr. Dale Kinnear,  
Canadian Police Association

Ms. Tammy Tondevold,  
Ontario Ministry of the Solicitor General

Mr. Richard Montminy,  
Corrections Canada

Ms. Rosanna Di Paola,  
Citizenship and Immigration  
Revenue Canada

Mr. David Keating,  
Transport Canada

Mr. Scott Burbidge,  
Solicitor General Canada

Insp. David Jones,  
Vancouver Police Department

Staff Sergeant Keith Whitton,  
Edmonton Police Service

Staff Sergeant Nigel Moore  
Waterloo Regional Police

Lt. Col. Matt Begert,  
US Marine Corps

Mr. Nick Cartwright  
Manager, Canadian Police Research Centre

Mr. John Arnold,  
Chief Scientist,  
Canadian Police Research Centre

Ms. Julie Graham  
Project Manager,  
Canadian Police Research Centre

Mr. Glenn Carroll,  
Project Manager,  
Canadian Police Research Centre



***NATIONAL RESEARCH COUNCIL'S  
INDUSTRIAL RESEARCH ASSISTANCE PROGRAM***

**IRAP Helping the Police by Supporting Industry**

The National Research Council's Industrial Research Assistance Program (NRC-IRAP) supports technology innovation in Canadian industry. Since 1945, NRC-IRAP has been providing Canadian industry with technical advice, linking companies with appropriate technologies, and assisting industrial research, development and adaptation through IRAP funding. IRAP's 1997-98 contribution to Canadian industry was approximately \$90 million.

CPRC and IRAP together match their client needs (for CPRC, the client is the police; for IRAP, Canadian industry). CPRC encourages the local police Technology Partner Associate to deal directly with their local IRAP Industrial Technology Advisors (ITAs) (there are over 250 ITAs spread across Canada). Local ITAs can be directly contacted by phoning the closest National Research Council office.

IRAP supported projects are submitted by small or medium-sized Canadian enterprises. IRAP negotiates, through their ITAs, each project with the company to determine the level of IRAP support. Usually, the negotiated amount is no more than 50% of the project cost. The company provides the remaining costs or the other 50%. Every IRAP-supported project must have some technical risk and, hopefully, a market for the technology. IRAP assists by sharing this technical risk with the company.

If your organization has a project that you think might qualify for IRAP support, please do not hesitate to call John Arnold at (613) 993-3737. He will have your local IRAP ITA contact you to discuss possible IRAP support.



## ***INTERACTION WITH OTHERS***

The CPRC's mandate of developing police equipment for the Canadian police community naturally interests many organizations. The following lists some of the many agencies and the interactions that took place during the year:

### **United Kingdom Home Office Police Scientific Development Branch (PSDB)**

As noted elsewhere in this report, a Memorandum of Understanding (MOU) was signed between PSDB and CPRC to establish a program of coordination and collaboration for the research, development, evaluation and operational use of law enforcement technologies and to enhance the already existing co-operation between the two agencies. As part of this cooperation, discussions were held with Forensic Science Unit, Dept. of Pure and Applied Chemistry, Strathclyde, University, Glasgow, Scotland and with the Dept of Electrical and Electronic Engineering, Nottingham Trent University, Nottingham England.

### **United States Department of Justice National Institute of Justice**

CPRC is in the process of negotiating a Memorandum of Understanding (MOU) with the National Institute of Justice (NIJ) also to establish a program of coordination and collaboration for the research, development, evaluation and operational use of law enforcement technologies and to enhance the already existing co-operation between the two agencies. CPRC is a member of NIJ's Law Enforcement and Corrections Technology Advisory Council which acts as their user advisory board. There is already an existing cooperative research and development agreement (CRADA) for the RCMP Laboratory's Forensic Automotive Paint Database and efforts are well underway to create a similar agreement for the RCMP's Firearms Identification Database. On-going cooperation exists on a wide range of topics including less-than-lethal technologies, high speed pursuit interdiction, personal wear body armour, contraband detection etc. In April 1998, CPRC participated as an observer at a mock prison riot staged by NIJ's Office of Law Enforcement Technology Commercialization as a showcase for less than lethal technologies and their application protocols.

### **Canadian Police Association (CPA)**

The study on the possible harmful effects of hand-held radar guns was one of the first examples of a collaborative cost sharing venture involving the CPA and CPRC. Currently, the CPA and CPRC are funding and participating in the CGSB project to create a Canadian standard for Soft Body Armour. A new cooperative initiative involves the development of specifications for vehicles which would facilitate installation of police patrol vehicle equipment.

### **Comité Européen de Normalization (CEN) Working Group on Personal Wear Body Armour**

CPRC and other members of the Canadian Personal Wear Body Armour working group have participated as observers at the meetings of the European group and have undertaken some cooperative work plans to jointly resolve some of the issues facing both groups.

### **United States National Academy of Sciences (NAS)**

A member from CPRC was asked to participate as a reviewer for the report from NAS's Committee on Marking Rendering Inert and Licensing of Explosive Materials. This report was produced for the US Bureau of Alcohol Tobacco and Firearms to fulfill one of the mandates of Section VII of the Terrorism Prevention Act prompted by the New York City World Trade Center and Oklahoma City bombings.





### **Canadian Society of Industrial Security (CSIS)**

The CPRC sits as an associate member of this Canadian industrial security organization.

### **Criminal Intelligence Service of Ontario (CISO)**

The CPRC regularly attends CISO technical seminars which address current police technology and equipment issues.

### **Ontario Police Forces Planning Association (OPFPA)**

As an associate member, CPRC representatives attend these meetings, contributing experience and expertise in the applications of technology. This organization is an excellent forum for the discussion of new ideas of current police interest.

### **Alberta Chiefs of Police R&D Committee**

A presentation from CPRC was requested by this group in an effort to insure that there was no unforeseen duplication of effort and to explore opportunities for mutual cooperation

### **Unsolicited Proposals Brokerage Service (UPBS)**

The UPBS program is administered through Public Works and Government Services Canada. Proposals are distributed to potential government agencies that may have an interest in the particular development. If there are sufficient sponsors and interest, UPBS manages the project through to completion. CPRC sits as a committee member on those projects which may benefit the police community

### **Canadian Police Information Technology Conference**

Members of CPRC presented an overview of information technology initiatives, particularly PSN, to this group of system specialists within the law enforcement IT sector.



## ***PROTECTION OF INTELLECTUAL PROPERTY ASSETS***

“Intellectual Property” (IP) can be defined as systematic knowledge in any form that would allow one to produce a product for, or supply a service to, someone else. The creation of a new invention or the development of a new technology is an example of an IP asset. IP can also be information data bases or the ability of personnel to perform certain tasks because of their specialized knowledge. The best known forms of intellectual property are technologies that can be protected by patent. Other forms of Intellectual Property can be protected by other legal instruments provided by the Copyright Act , Industrial Design Act and the Trademarks Act .

Although police agencies do not have as their primary purpose the development of IP, many of their activities, especially in their technical units, result in the creation of IP assets. Some of these IP assets must be reserved for the exclusive use of the owning police agency or the general law enforcement community. However, when the IP assets are of potential commercial value and they can be released to private industry, commercialization should be pursued. The economic benefits to the police agency and Canadian industry can be significant.

The Science & Technology Branch of the RCMP, in addition to providing staff to the Canadian Police Research Centre, provides a management service for RCMP and CPRC Intellectual Property assets. The Intellectual Property Office of the NRC is the RCMP’s primary source of expertise and assistance with such matters. Other police agencies can obtain general information regarding the management of their own I.P. assets from the CPRC. They will have to use other professional agencies (eg. law firms, patent firms) for specific legal assistance such as licensing and patenting.

***A video-cassette entitled “Intellectual Property – Protecting Your Technology”, is available from the CPRC upon request by fax at (613) 952-0156 or email: cprc@nrc.ca.***



***Submitting R & D Proposals***

At the centre of this annual report you, will find a proposal form which is to be completed as fully as possible. A copy of the form will suffice for our purposes. An Executive Officer must sign the form (Chief of Police, Commanding Officer or equivalent).

The focus of the CPRC is **research, development or evaluation of police equipment**. Liaison is maintained with the Solicitor General’s Police Research Division with respect to social science input of technological innovation.

**GUIDELINES FOR ACCEPTANCE AND ESTABLISHING PRIORITIES**

*“Can It Make A Difference”*

- Risk factor..... Frequency of potential use or occurrence
- Operational Impact..... How widespread is the need in the community
- Dollar implications..... Resource saving potential/dollar cost
- Progress/Innovation..... Operational effectiveness and innovation
- Attainability..... Technical risks and costs - adapt or create
- Partnerships..... Potential for risk and cost sharing, degree of commercial viability

A project must fit one of the three categories to be included and the priority that will be assigned to it will be based on a review of the above factors. The results of the review based on the factors will be retained on the project file for reference.

**Category A**  
Health and safety – protecting the Police in hazardous situations

**Category B**  
Operational effectiveness – fighting crime, gathering information, intelligence and evidence

**Category C**  
Protecting the public – traffic, custody, crime prevention,

As an illustration, a category B project that will save significant resources, be applicable throughout the community and is relatively sure of success may well be given the same or higher priority than a project that may protect a police officer in a hazardous situation that occurs very infrequently. Similarly, protecting the public with a device that controls high speed chases simply and safely may well come first overall. The goal is to effectively and as objectively as possible reflect the priorities of the overall police community and their clients.