



Report on the Fifth  
International Law Enforcement Forum for

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**MINIMAL**

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**FORCE**

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**OPTIONS**

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and Less-Lethal Technologies

Washington & Fairfax - November 2006



**NIJ**







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**Report Editor**

*Lieutenant Colonel Edward L. Hughes, U.S. Army-Retired*

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**Acknowledgements**

*The Fifth International Law Enforcement Forum on Minimal Force Options was co-hosted by the National Institute of Justice and the Metropolitan Police Department of the District of Columbia. The forum was organized and conducted by the Institute for Non-Lethal Defense Technologies (INLDT) of The Pennsylvania State University. The workshop was held in Fairfax, Virginia and Washington, DC on 7 & 8 November 2006. On the third day (9 November), there was an open session of ILEF to which the chief executives of leading less-lethal companies were invited. The purpose was to continue the productive engagement began at the 2005 Forum with the goal of improving product development to best reflect the needs of the international law enforcement community.*

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The ILEF Advisory Board wish to place on record their thanks to the National Institute of Justice (NIJ) and to the Metropolitan Police Department (MPD) of the District of Columbia for co-hosting the Workshop. In particular, we are immensely grateful to Chief of Police Charles H. Ramsey and his staff Captain Victor Brito, the Commanding Officer of the Joint Operations Command Center (JOCC), for their gracious hospitality in providing a tour of the Metropolitan Police Department (MPD) Headquarters and the JOCC as well as Commander Cathy Lanier from the MPD Office of Homeland Security (now Chief of Police).

We also wish to thank to thank the New Zealand Ambassador to the United States, Mr Roy Ferguson and his staff, particularly Superintendents Neville Matthews and John Rivers, for hosting the reception at the New Zealand Embassy which was a highlight of the conference. The full text of Ambassador Ferguson's welcome and address is included in the report, however, the following extract from his remarks places in context the international recognition that is attached to ILEF:

*The less-lethal weapons that are provided to our law enforcement officers be they in Sweden, the United Kingdom, Canada, the United States or New Zealand, need to be the best researched, best developed, and most reliable that they possibly can. In this regard, I acknowledge and praise the work being done by the International Law Enforcement Forum in developing internationally agreed approaches to not only the operational requirements for less-lethal weapons but also the identification of effects and standards in the developing and testing of such weapons.*

It remains our view that the pursuit of minimal force options, the policy and legal aspects of developing and employing such technology, and the surrounding debates, should be conducted openly and on the basis of informed scientific and medical assessment set against clearly articulated operational requirements by professionals who have experience in policy, command, operational theaters of use and tactical deployment.

The content of this report is not intended to represent any policy and/or official position of ILEF, The Pennsylvania State University, the governments of the delegates in attendance, or any of their affiliated agencies. Although the conclusions and recommendations are based upon a general consensus of the participants, they do not necessarily reflect the views of all of the participants and/or the agencies which they represent.

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COMMENTS PERTAINING TO THIS REPORT ARE INVITED AND SHOULD BE FORWARDED BY POST TO THE DIRECTOR, INSTITUTE FOR NON-LETHAL DEFENSE TECHNOLOGIES, APPLIED RESEARCH LABORATORY, THE PENNSYLVANIA STATE UNIVERSITY, P.O. BOX 30, STATE COLLEGE, PA 16804-0030 OR BY ELECTRONIC MAIL TO: [INLDT@PSU.EDU](mailto:INLDT@PSU.EDU).

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## Preface

The first two meetings of the International Law Enforcement Forum (ILEF) on Minimal Force Options held at The Pennsylvania State University in April 2001 and October 2002 were extremely successful in focusing on less-lethal weapons (LLW) and minimal force concepts, technologies and deployment at the expert practitioner level.

The United Kingdom's Police Scientific Development Branch (now the Home Office Scientific Development Branch) hosted the third meeting of ILEF in February 2004 on behalf of the UK government's steering group on less-lethal technologies. The 2004 forum had focused on moving forward with the development of accepted international standards for development, testing and training. The event included a consultative forum with research and evaluation organizations, police oversight bodies, academic and political research groups, government departments and non-governmental organizations (NGOs). It was important in promoting open dialogue between practitioners, interest groups and other non-government actors and providing an opportunity for a greater appreciation of the issues and concerns surrounding use of less lethal technologies.

The Royal Canadian Mounted Police (RCMP) hosted the fourth meeting of the Forum in 2005. This 2005 Forum included a day dedicated to discussion with less-lethal manufacturers and distributors. Key issues included identifying operational requirements and capability gaps, development and establishment of testing and training standards for less-lethal technologies, and working together to achieve those ends.

This year's Forum in Fairfax brought together persons involved in the development, use and monitoring of less-lethal technologies and included representatives from the United Kingdom (UK), the United States (US), Canada, New Zealand and Sweden. Delegates examined best practices in controlling aggressive individuals, maintaining public order, conducted energy devices and less-lethal applications and emerging issues in counter-terrorism.

Participation in these forums, as in previous years, has been by invitation and has assembled internationally recognized subject matter experts, chiefly practitioners from law enforcement, together with technical and medical



Previous ILEF Reports



Delegates of the 2006 International Law Enforcement Forum

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experts and those with specific interest in policy development primarily from the United Kingdom, Canada and the United States. As in previous years, delegates from military agencies who are involved with the development and use of less-lethal technologies also participated. These included the US Joint Non-Lethal Weapons Directorate, the Canadian National Defense and the Swedish Defense Research Agency.

This report is a summary of the Forum discussions, the associated conclusions and recommendations for further work derived by the sessions. The forum makes specific recommendations in relation to best practices in controlling aggressive individuals; maintaining public order; conducted energy devices; and the strategic, tactical and technological concerns in counter-terrorism operations including community impact, public order and individuals conveying terrorist threats.



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# Executive Summary

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*Policing involves patrol officers being placed in situations where they are required to respond rapidly and appropriately. The circumstances might be confronting a violent or aggressive individual, maintaining public order, or dealing with terrorists. The officer must observe the potential threat, evaluate risks to persons and property, consider consequences of any action or inaction, determine the appropriate response, and respond with the appropriate level of force – often in a matter of seconds. Less-lethal technologies continue to provide officers with the capability of a variety of force options which reduce the need to resort to lethal force. While generally there are different views regarding the role of these devices and related techniques, when operating in such ambiguous and uncertain situations, there are often many more similarities in approach.*

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The 2006 Forum addressed many issues related to best practices in controlling aggressive individuals, maintaining public order, conducted energy devices and less-lethal applications.

Delegates from represented countries, disciplines and police departments also examined less-lethal weapons (LLW) and issues in counter-terrorism. There were six distinct workshop sessions in which the delegates participated:

- Aggressive Individual Control Techniques;
- Crowds and Less-Lethal Weapons;
- Conducted Energy Devices;
- Strategy, Tactics and Technology in Anti-Terrorism Scenarios;
- Community Impact and Public Order in Anti-Terrorism Scenarios; and
- Policies and Technologies for Individuals Conveying Terrorist Threats.

The major recommendations are:

1. **Testing Repeatability.** ILEF should encourage manufacturers to consider “repeatability” as an important aspect of test design for their systems. Testing should be readily verifiable by independent researchers replicating manufacturer testing.
2. **Policy Consulting.** ILEF should encourage manufacturers to consider consulting upper level law enforcement early in development in order that the potential impacts on policy, public acceptance and incident management can be effectively addressed.
3. **Operational Requirement – Individuals.** ILEF should communicate to manufacturers the operational requirement for systems that will immediately incapacitate or gain compliance of individual terrorists and other aggressive individuals. Some of the ideal system requirements would include the ability to engage subjects distance (>25m) with precision, no injury to the suspect, no lasting contamination, no long-term effects, no cross-contamination, reusable and easily re-loadable, weather resistant and small enough to be easily carried.
4. **Operational Requirement – Crowds.** ILEF should encourage and support research into technologies and methods to identify and selectively target anarchists in crowds and others that mean to create havoc and incite riot. The system itself would require an ability to safely and effectively strike subjects at ranges that exceed “missile” throwing range.

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5. ***Chemical Irritant Projectile Research.*** ILEF should encourage and support research on chemical irritant projectiles focused on examining policy issues and strategic considerations as well as exploring and documenting best practices, techniques, and training procedures. Technical research might center on creating more synergistic effects by leveraging the benefits of chemical irritants and the projectile delivery means, while mitigating the drawbacks of each.
6. ***Conducted Energy Device (CED) Research.*** ILEF should encourage and support continued research in the area of CED biological effects to bring clarity to the issues surrounding “associated deaths” and more fully understand CED effects and how they might interact with some pre-existing biological conditions. This research should have the objective of contributing to the eventual development and acceptance of medical standards internationally.
7. ***Instantaneous Incapacitation.*** ILEF should encourage and support efforts to develop an effective and reliable way of instantly incapacitating large numbers of people (with instant decontamination, neutralization, and/or mitigation of the means).
8. ***Standards.*** ILEF should continue its efforts in taxonomy and testing standards to include defining less-lethal system “reliability” and moving the independent testing and evaluating “test house” concept forward internationally.
9. ***Discarded Technologies.*** ILEF should lead an effort to re-examine previously discarded less-lethal technologies and approaches and assess their potential for use in counter-terrorism missions and support operations.
10. ***Calmatives and Immobilizing Technologies.*** ILEF should encourage and support efforts to more fully develop discriminating and non-discriminating immobilization weapons (including but not limited to calmatives) in order to effectively address the issue of law enforcement establishing control over hostage-takers and other explosive-laden terrorists to preclude significant loss of life (bystanders, hostages, law enforcement), recognizing the potential social acceptability issues. This should include, but not be limited to policy examination and technology research and development regarding calmative (anaesthetic/tranquilizer) system(s) that could be safely deployed in a number of operational settings.
11. ***Suicide Bombers.*** ILEF should encourage and support efforts to more fully develop methods and technologies to stop a suicide bomber without detonating the bomb (to include neutralizing explosives at range).
12. ***Distraction Devices.*** ILEF should encourage and support efforts to enhance devices causing temporary/flash blindness in order to expand the exploitation window these distraction devices create.

# Introduction

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## Background

In 1999, the Pennsylvania State University (Penn State) and the Los Angeles Sheriff's Department hosted the International Commission on Policing in Northern Ireland, chaired by Mr. Chris Patten. It was evident that the issues associated with acceptable and effective less-lethal technologies would benefit from a meeting of subject matter experts.

The first official meeting of The International Law Enforcement Forum on Minimal Force Options (ILEF), was held at Penn State in April of 2001. The meeting brought together a small group of US and UK personnel who had been active in researching and developing issues in respect of police use of less-lethal technologies. Penn State had already been involved with the US military program through its Institute for Non-Lethal Defense Technologies (<http://www.nldt.org>) and had developed meaningful contacts with US Law enforcement. The first meeting served to confirm the value of international cooperation, which had a law enforcement focus, on use of less-lethal technologies and to work through principles associated with minimal force options and to capture common operational needs.

The second ILEF meeting, conducted in October 2002, identified a number of issues that required some action. The more urgent of these included the development of a less-lethal weapon/technology database, the development of an injury database, the characterization of operational needs and the development of standards for development, testing, and training. Shortly after this second meeting of ILEF, the UK Steering Group chaired by the Northern Ireland Office, in consultation with the Association of Chief Police Officers, issued its Phase 3 Report (December 2002) on Patten Commission Recommendations 69 and 70, relating to public order equipment. This report included a summary of the ILEF meeting and its recommendations. The 4th report of the UK steering group likewise referenced ILEF and its ongoing work to develop international standards for testing and training.

The 2004 ILEF meeting, held in the UK, included policymakers, researchers, and medical experts versed in various aspects of less-lethal technologies, their applications and their effects. The delegates examined gaps in capabilities and medical assessments, information sharing, and the development of common standards for less-lethal weapons development, testing, training and use. The event included a consultative session with research and evaluation organizations, police oversight bodies, academic and political research groups, government departments and non-governmental organizations (NGOs). It was important in promoting engagement between practitioners, interest groups, and other non-government actors and provided an opportunity for a greater appreciation of the issues and concerns surrounding use of less-lethal technologies.



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Under the auspices of ILEF, a delegation from the UK visited Washington in the week commencing August 16, 2004 to discuss various matters relating to less-lethal technologies. One of the main objectives was to peer review the approach and methodology used by the UK Steering Group on alternative approaches to the management of conflict and development of less-lethal weapons with the assistance of Penn State and key American ILEF personnel. The peer review concluded that the UK's structured approach needed to serve as the foundation for approaches on an international basis. It was acknowledged that ILEF had an important role to play in assisting the development of best practice and in the assessment of new technologies. It noted the importance of information sharing continued in this regard and that the peer review process had demonstrated the utility of having a resource pool of subject matter experts upon whom it could call.

The 2005 International Law Enforcement Forum on Minimal Force Options, hosted by the Royal Canadian Mounted Police brought together persons involved in the development, use and monitoring of less lethal technologies and included representatives from the United Kingdom (UK), the United States (US), Canada, New Zealand, and Sweden. The participants included senior practitioners, researchers, and medical experts versed in various aspects of less-lethal technologies, their applications and their effects. The delegates examined gaps in capabilities and medical assessments and the development of common standards for less-lethal weapons development, testing, training and use. The ILEF delegates had the opportunity to attend and participate in a consultative forum with manufacturers and distributors of less lethal weapons. This consultative event was important in promoting engagement, between practitioners, law enforcement associations, manufacturers and distributors.



ILEF Delegates at work

### Proceedings

The 2006 International Law Enforcement Forum on Minimal Force Options was hosted by the National Institute of Justice, Penn State and the Washington, DC Metropolitan Police. The Forum once again brought together persons involved in the development, use and monitoring of less-lethal technologies and included representatives from the United Kingdom (UK), the United States (US), Canada, New Zealand, and Sweden. Delegates examined best practices in controlling aggressive individuals, maintaining public order, conducted energy devices and less-lethal applications and issues in counter-terrorism. The specific objectives of the 2006 Forum were to:

- Continue international dialogue on public order and public safety;
- Examine issues of policy, tactics, training, arrest, and post-incident management with respect to the use of chemical irritant projectiles for single subject encounters and public order situations;
- Examine international less-lethal operational requirements for dealing with a majority of aggressive individual control scenarios;
- Examine issues of utility, policy, tactics, training and post-use audit with respect to the use of impact rounds as both a crowd management

technology or a highly accurate discriminating munition to be used against targeted individuals within a crowd;

- Examine the tactical options and relevant responses that are available to police when there are lethal weapons fired from within a crowd;
- Examine tactical decision-making and employment options between large and small crowd situations;
- Examine the effect of the introduction of Conducted Energy Devices (CEDs) on the selection of other less-lethal options by officers in one-on-one type situations (e.g., impact rounds, incapacitant sprays, batons);
- Examine the key policy, accountability and outstanding medical issues with respect to the deployment and effectiveness of CED technology;
- Examine the strategic and tactical considerations when police officers in counter-terrorism operations deploy less-lethal options;
- Identify and examine the pre-eminent technological concerns and community impact as well as the relevant policy issues with regard to employing less-lethal systems or devices in response to a terrorist event (counter-terrorism operation or its aftermath);
- Discuss the adequacy of training with respect to the employment of less-lethal systems to address public order tensions and the presence or emergence of hostile crowds that threaten public order in the aftermath of a terrorist attack;
- Discuss and examine the policy issues that exist with respect to dealing with identified individuals conveying terrorist threats (collateral damage, innocent bystander risks) who are presenting a specific potential threat.

## Workshop Presentations

The ILEF workshop took place at the Hyatt Fair Lakes in Fairfax, Virginia on November 7, 8 and 9, 2006. It began with opening remarks and an outline of the program provided the chair of the ILEF Advisory Board, Mr. Colin Burrows, QPM. Canada, New Zealand, the United States and the United Kingdom each **provided the group an update on less-lethal weapon initiatives.**

**Opening Address - Mr. Colin Burrows, QPM.** Mr. Burrows, in his capacity as Chair of the ILEF Advisory Board, welcomed all of the participants and in particular those from Washington DC Metropolitan Police who were co-hosting the forum with Penn State and the United States National Institute of Justice.

Colin began by providing some context for the workshop. He stated that a police officer's exercise of the use of lethal force is subject to the highest degree of judicial scrutiny, public debate and peer group review. In the face of perceived imminent danger, officers are required to determine the measure of force that is appropriate, proportionate and reasonable and take definitive action in a fraction of a second. The processes involved are complex, deep ranging and not well understood but will be the subject of exacting analysis and legal argument. He continued that the issues become exceedingly more complex when the Pandora's Box of less-lethal weapons is introduced.



**Mr. Colin Burrows, QPM**

He asked the conference to consider what changes, if any, there have been in the mindsets of law enforcement officers and the wider public regarding the police use of force and firearms given wider availability of less-lethal weapons and what if anything groups such as ILEF were doing to bring a degree of informed realism to the subject. He asserted that for the most part, police official, media and public understanding and expectations continue to be fashioned by the Hollywood version of what determines self defense, appropriate action and a subject's response to having been shot. He asserted that our language and articulation of key issues associated with the use of firearms and less-lethal weapons often lacks the clarity and precision which should accompany an issue of such gravity. There was also a need to ensure that we communicated key issues to the wider audience in ordinary language which the public could understand.

*“England and America are  
two countries separated by a  
common language.”*

*--George Bernard Shaw*

Mr. Burrows continued by paraphrasing George Bernard Shaw. He said that we are peoples divided by a common language. He expanded on this thought by saying that just as there are language barriers between English speaking countries across the Atlantic, there are similar barriers in language between the military services – Army, Marines, and the Naval forces within respective nations – who speak and use different terminology which reflect cultural differences in respect of their concepts of operations and tactical approaches to managing conflict and the use of force. Similar distinctions exist within the law enforcement agencies and between patrol officers, detectives, intelligence operatives, SWAT officers, public order officers, commanders and policy-makers.

The underlying approach of military and law enforcement differs in the use of similar equipment and there are, he asserted, also clear differences between operational personnel be they police or military and academics and in respect of definition of terms and appreciation of operational factors. In addition, those involved with investigations after the use of force bring a whole different set of values, words, terms and meanings. There are also those tasked with operational and political oversight often reaching up to the highest levels of government whose use of terminology and description of operational concepts is at variance with those of the manufacturing and operational communities. The challenges of bridging these language barriers were an area that ILEF was intent on meeting. Often our inability to properly “translate” key issues ends up in the newspaper headlines and the tabloids and results in more misunderstanding with phrases like shoot to kill, and death following use of a less lethal weapon creating confusion amongst readers and frustration among operational personnel and informed researchers.

Emotive images and quick headlines do a disservice to both the professional who respond to violent situations and the public on behalf of whom they respond. Part of our effort within ILEF has been to get agreement on taxonomy and the challenge extends to bridging the appreciation and cultural gaps to which he had alluded. Why is this important? Because whenever there is a controversial use of force, or an investigation or international inquiry, relating to death, serious injury or alleged abuse of force, expert evidence is sought from many disciplines and from persons with varying backgrounds. The law enforcement community and those involved with peace keeping missions will do themselves an injustice if this fundamental issues is not addressed. This is one of the reasons ILEF has been investing time in addressing a common taxonomy and appreciation of key issues relating to science and

technology, policy preparation, appreciation of human effects and operational practice relating to less-lethal weapons. Mr. Burrows highlighted the international commonality of issues relating to the firing of impact rounds and use of water canon, tearing agents and Taser, noting that the historic and cultural context varied immensely from jurisdiction to jurisdiction and in differing operational circumstance.

Referring to the differing operational contexts but similar operational challenges, Colin Burrows referred to the deaths which had occurred in the early 70 and 80's in Northern Ireland from the use of baton rounds used as a crowd control measure. He highlighted there remained occasions when it had been necessary to still fire impact rounds (of a very different design and under different operational guidance) in situations of serious public disorder, these were no longer used as a crowd control technique but rather as an accurate and discriminate system fired at the belt buckle area of a clearly identified aggressor. As a consequence, there had been no deaths associated with baton round use since 1989. Design of both projectile and launch system had changed as did policy, training guidance, command control and oversight.

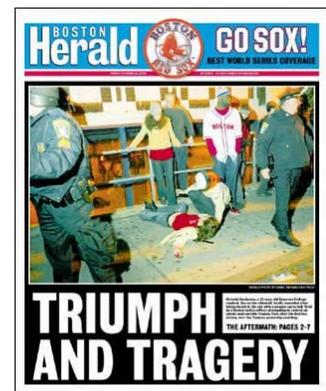
However, as the tragic death of Victoria Snellgrove in Boston through a high strike from a 'less lethal impact round' illustrated, issues associated with the selection and training, and oversight of staff, at all levels was of equal importance as the design and selection of weapon systems. It was of note that this was indeed a key finding of the Commission of inquiry set up by the then Police Commissioner of Boston Kathleen O'Toole. Commissioner O'Toole was a member of the international Commission on Policing in Northern Ireland which, as part of their role there, recommended a substantial investment in research to determine whether there was an effective and acceptable alternative to the baton rounds formerly used as a crowd control technology. It was this recommendation, together with other tragic shootings of emotionally disturbed persons in other parts of the United Kingdom, that had resulted in the Government chaired review of less-lethal weapon systems in the UK which extended to reviewing how conflict in potentially violent citizen/police encounters were managed.

There is much that we can learn from each other in our approaches, and use of systems. It is important that taxonomy or culture do not become obstacles to learning and sharing.

Suggesting that some of our embedded ideas and concepts need to change, Colin asked delegates to consider what paradigm shifts we needed to consider and what operational concepts, pseudo science and human effects issues we needed to challenge.

As an example, he cited was the debate about Excited Delirium which a few years ago was being accepted as the concept that we needed to inform policy makers, police officers, medical practitioners and coroners about. Many in the medical field are now challenging the concept: Is it or is it not a valid syndrome which needs to be understood? If you are the expert witness in a case, there will be another 'expert' called to challenging what you are saying.

In the immediate aftermath of a fatal shooting, a chief of police often wants to use the quick headline and say, "we would never use a less-lethal device in a deadly force scenario." However for every rule there is an exception and there



**Front page of the Boston Herald after impact rounds were used for public order and resulted in a death.**

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will be many examples nationally and internationally where a potentially deadly force scenario is appropriately resolved using a less-lethal technology.

Colin asked why there seems to be a different attitude or mindset to the use of force once a terrorist threat is mentioned.

Often the only thing which separates a domestic terrorist from the criminal armed assailant is political motivation not the actual threat. Yet there are many involved with counterterrorism who would assert that there is no role for less-lethal weapons in these operations. Others would disagree. Perhaps the term “terrorism” itself begins to impede understanding and limits us in the options we consider. If we don’t think about the implications of language and terminology in a forum like this, then we are missing an opportunity. There are no easy answers, but there are areas where we can begin to drill down to and establish arguments that are coherent. We can hear other views and we can challenge thinking in a constructive way.

The UK (England, Wales) has recently used TASER® in a very controlled top down way. Government and Chiefs of Police, in the form of the Association of Chief Police Officers (ACPO), agreed upon the approach and criteria for testing, evaluation and introduction. Guidance and training were determined by ACPO, not the manufacturer. The manufacturer jumped through tremendous hoops to get it approved. This was immensely helpful in ensuring quality control issues. Information regarding the technology and its intended use was appropriately presented to the public and concerned interest groups, including Human Rights organizations. Mr. Burrows noted also that in recent conferences where a number of ILEF members have met (Washington and Houston and other places) relating to TASER®, some of those concepts and guidance developed in the UK have been adopted by North American law enforcement. Similarly, the UK has learned much from shared US experience.

Colin urged delegates to seize the opportunity provided by ILEF and to participate in the workshops where there would be others with experience in policy tactics, legal issues, oversight in order to begin to “tease out” policy and good operational practice issues that need to be addressed and documented.

He encouraged participants to express views, question others, and challenge established concepts. The intention would be to ensure the discussions were captured and that the feedback sessions were documented in the International Law Enforcement Forum report. Mr. Burrows stressed again the great strength and value that comes with the International component of this Law Enforcement Forum.



**Canada (CA).** Corporal Lefebvre conducted a review and update of less-lethal force options in Canada, from the perspective as a representative of the Royal Canadian Mounted Police (RCMP), the national police service of Canada. He qualified his presentation as such, commenting that this certainly did not mean that there weren’t other activities being conducted within the numerous provincial and municipal police services across the country.

*Conducted Energy Weapons (CEWs).* The RCMP has been using TASERs® for several years. It is being employed at the general duty level throughout the country. In addition to general duty, it is also being used by arresting team officers in public order situations. Ontario municipal agencies have not yet been authorized to use the TASER® at that level. The RCMP has supported the development and implementation of national policy for use of the TASER®

and are rolling out the X26® model this year. As there are more tools available to the Canadian policing community, there has been a growing desire by many outside of law enforcement to wedge each technology into the force continuum in a particular place in order to better understand its use. Obviously, while well-intended, these efforts do not consider the different contexts within which these tools might be required. This continues to be discussed and debated across Canada. The new civilian model TASER®X26C brings with it an additional concern: how will a civilian TASER® in the hands of a subject change the dynamic of a situation?

*Extended Range Impact Weapons (ERIW).* Since 2001, Canada has widely adopted the drag stabilized bean bag round, largely limited to the use by Emergency Response Teams (ERT). Tactical troops use them in public order situations as well. There has been some discussion with the RCMP Operations Policy Center to expand the use of the system since it works well for ERT and public order. The RCMP has slowed wider deployment to general duty officers until they can address, among other things, the challenge of developing and implementing a corresponding scenario-based training program.

Some municipal and provincial police agencies throughout Canada have been using the ARWEN® 37mm systems. The RCMP is now re-evaluating the possibility of deploying that system as well. Additionally, the RCMP has recently completed an evaluation of the FN303™ and decided not to adopt it, since it does not address specific RCMP needs. Ferret rounds seem to be very effective, but have limited uses (barricaded individual).

*Acoustic Devices.* The RCMP is very interested in the potential of the Long Range Acoustic Device (LRAD), especially in light of preparations commensurate with the city of Vancouver hosting the Olympics in 2010. Recognizing the potential of acoustic hailing capabilities, there is some concern regarding its effectiveness as a large crowd management tool. The RCMP has not yet evaluated the medical risks and would like to see more research in this area.

*Water Projection.* The RCMP is on the verge of fielding its first water projection system. One of the major issues has been the water carrying capacity of the system. Since the original system was designed for fighting fires, the prototype monitors have to be modified to meet low volume and high precision requirements. The RCMP expects that by January 2007 these modifications will be in place with a roll out of the system by the spring. Ideally, the RCMP envisions having four of these vehicles - two in eastern Canada and two in western Canada. Since specialized training is required, the concept would be to have trained teams for those who would be deployed with the system to wherever they are needed to support operations.

*Partnerships.* Since the last meeting of ILEF in Ottawa, The RCMP has been very engaged with the Canadian military. A number of agencies have approached the RCMP to partner with them in looking at crowd management applications in foreign theaters. Canada Command is leading the Canadian portion of an international effort to define North Atlantic Treaty Organization (NATO) Standards including Crowd Confrontation Operations (CCO). This reinforces the point made earlier regarding the value of taxonomy and ensuring we are all using the same terminology.



**Water cannon**



*“...officers with TASER®s were about 75% less likely to deploy firearms, controlling for the level of suspect resistance and the officers’ background characteristics.”*

**The United States (US).** Following on from this, the US presentation was made by Deputy Chief Michael Ault, Las Vegas MPD. When a new product is placed on the market, the Las Vegas MPD listens to the research that comes out and department leadership tries to make some judgments. When TASER® arrived on the scene, it was probably one of the most “sexy” tools to ever be introduced to policing. It had a science fiction mystique. It was perceived as having the potential to free police from all of the issues of lethal force. Of course, all that it takes is one person to die after using a new device and everyone is again searching for that ultimate weapon.

When the Las Vegas MPD introduced TASER®, it was rolled out to a station as a controlled deployment for about four months after receiving vendor-training. The MPD evolved their policy for use as they went along. This was done in “real time.” They went to full deployment in January of 2005 and are now up to about 1,000 TASER® uses in the 21 months since that time, with nearly 3,000 officers who carry the device. Departmental deployment of these devices was a significant expense, especially considering that it was based largely on what the vendor had told the Department. Recognizing some of the challenges with this approach, the Sheriff decided to fund some research on the effectiveness of the Department’s deployment of the TASER®. He contracted Dr. Phil Souza of the Criminal Justice Department at UNLV to examine the deployment. He conducted a literature search and reviewed all of MPD’s use of force data in order to determine whether TASER® was effective at reducing officer-involved shootings.

He conducted experiments using our Advanced Officer Skills Training (AOST) scenarios with 64 officers randomly assigned into two groups (experimental and control). Both groups were presented the following three scenarios to determine whether the experimental group differed from the control group (the term low-lethal refers to what is generally called “less-lethal”):

- Non-Aggressive Resistance: No significant differences between the two groups in terms of weapons used / choices made. Officers in both groups were likely to opt for “empty hand” force rather than any low-lethal weapon.
- Aggressive Resistance: Differences between the groups in terms of pepper spray use and baton use. Use of low-lethal weapons more likely for both groups.
- Potentially Lethal Resistance: Significant differences between the two groups in terms of firearm use.

The study found that officers with TASER®s were about 75% less likely to deploy firearms, controlling for the level of suspect resistance and the officers’ background characteristics. Officers with TASER®s were 90% less likely to deploy pepper spray, controlling for the level of suspect resistance and the officers’ background characteristics. At the level of aggressive resistance, officers with TASER®s were significantly less likely to use batons. Not surprisingly, the study also found that the amount of experience with the specific tool influences the choices the officer makes. The younger officers tended to use the TASER®s more often than the more seasoned officers, who had more experience with the baton and pepper spray. One of the benefits of this experiment is that the LVMPD was able to test the validity of both their policy and training assumptions.

**New Zealand (NZ).** Superintendent John Rivers presented the New Zealand Police Update. Some of the activities ILEF has been discussing are as much about managing stakeholders. The police executive on a daily basis deals with managing supervisors, opponents, politicians, the media and the public at-large. New Zealand has a population of about four million people. There are 10,000 police officers with about 6,500 of those being front line officers.



The defining moment for the police of New Zealand with regard to the TASER® occurred about six years ago when there was a fatal police shooting. The investigation found that the shooting was lawful, but subsequent litigation by family members charged the officer in open court. Ultimately he was acquitted. Building on that, Superintendent Neville Matthews led an extensive informational survey of less-lethal weaponry and developed a comprehensive report that addressed many of the technical options available. New Zealand has been fortunate to have been able to leverage all of the work in this area being done around the world, particularly through the relationships with the United Kingdom, ACPO and various constabularies in the Home Office.

Following that report, New Zealand Police (NZP) conducted a non-operational evaluation of less-lethal munitions, followed by an operational evaluation of the TASER®. The NZP have purchased 35 devices, have 180 trained staff and are seeking a 12 month period to have 24/7 availability of TASER®. This may seem unusual, but all of New Zealand's front line officers are trained in firearms and have the Glock® and Bushmaster readily available as well. None, however, carry side arms. In relation to the TASER®, officers will not carry the device during the trial. When the officers start their duty, they will get the TASER® and it will be maintained in a security box in the car. During the trial, people will also be dispatched to conduct a risk assessment for a specific incident to ensure there is sufficient justification.

In New Zealand, most of the opposition to the TASER® is not really about the TASER itself. It comes from those that either don't like the police or those that lack trust and confidence in the police. There are some very high profile politicians and barristers that have formed a well-organized coalition to spin public opinion against TASER®. Opponents are seeking to use overseas incidents as a means to discredit the TASER® and thereby support their position against police and less-lethal weaponry in general.

*“Use of force is a discretionary option, but unfortunately, there are incidents where use of force can become an essential aspect to effective management and resolution.”*

Having an understanding of one's operational environment is critical. In a year in New Zealand, two thousand front line people are assaulted. Of those, 650 are seriously injured. Very few of the stakeholders have any depth of understanding for what police officers contend with each day. Every year, 110,000 people are arrested. Of those, seven to ten percent are either drunk or on drugs. Use of force is a discretionary option, but unfortunately, there are incidents where use of force can become an essential aspect to effective management and resolution. It is part of the NZP operating environment.

The cornerstone of the TASER® trial is to achieve trust and transparency. To achieve transparency a website was established that includes an incident log available to the public.

Perhaps even more exciting than the TASER® trial is New Zealand's research to better understand the Police operating environment and the factors that make use of force the only realistic tactical response in specific circumstances. New Zealand has a technical report options database. They currently have

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mandatory reporting on the use of force, but up until now that has been via hard copy reports. Data from this type of reporting are difficult to gather, analyze and correlate. Within a few months, special computers with Lotus® Notes will be fielded and there will be an electronic reporting capability provided to officers. The benefit is a better understanding of the operating environment. It is expected to further legitimize TASER® and other less-lethal options and provide a better understanding of, as well as the ability to review, both training and equipment.

**The United Kingdom (UK).** Following on from this the UK presentation was made by Mr. Graham Smith of the Home Office Scientific Development Branch (HOSDB). When the United Kingdom (UK) program began, there were five priority areas for less-lethal systems. These included:

- Impact Devices/Kinetic Energy Rounds;
- Chemical Delivery Devices;
- Distraction/Disorientation Devices;
- Water Cannon;
- Electrical Devices.



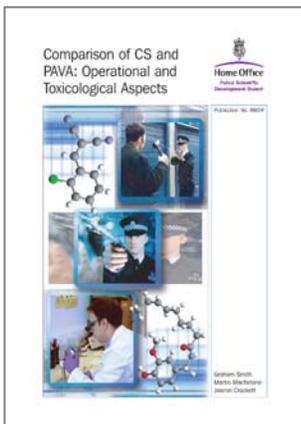
**Attenuating Energy Projectile or AEP (left) and the L21A1 Baton Round (right)**

*Impact Devices/Kinetic Energy Rounds.* The Attenuated Energy Projectile (AEP) was deployed on 21 June 2005 across the UK in and since that time, it has been used over 400 times with no serious injuries or deaths associated with its use. It was designed to be more accurate, safer and reduce the injury potential, especially to the head. The AEP is made of polyurethane. It has a hollow front end designed to compress on impact to a hard surface such as bone, thus attenuating the transfer of energy over a longer time period and reducing the chance of fracture. If the round hits a soft area of the body, such as the abdomen, the round does not compress and transfers energy in the same way as its predecessor, the L21A1, causing a similar response. These rounds are part of a system and would not be as safe without the other components of the system. The system components also include the weapon, the sight, the projectile, testing, training, and accountability. The HOSDB did look at beanbags and a number of other kinetic round options for use in the UK, but the AEP was considered safest and most effective.

*Chemical Delivery Devices.* The drawback of any kinetic energy round is that it relies on pain and therefore is not necessarily going to be effective every time. The HOSDB has a program in place to look at irritants at distance as well. The key user requirements for this system were that:

- It be accurate and discriminating (primary exposure to one person);
- It be fired from the same L104 baton gun using the same aim point;
- It have a 95% probability of hit (from fixed launcher) on a target at 25 meters (400 x 600mm) and a 85% probability of hit (man-fired);
- Its irritant be retained until impact and then all discharged.

The design of the discriminating irritant projectile (DIP) will be finalized in early 2008. The HOSDB will then begin scenario-based trials to assess how it will be used and to put into place operational procedures and guidelines. Those trials will take place in April and July of 2008.



**HOSDB Report on CS and PAVA**

In the past, the UK had used traditional irritants such as CS (2-chlorobenzalmalononitrile). At the last ILEF meeting, the UK reported that they were using PAVA, which is a synthetic version of Oleoresin-Capsicum (OC). They now have a specification for the spray which was published at the end of October 2006. The UK is also considering a new solvent which reduces the cross-contamination problem.

*Distraction/Disorientation Devices.* The HOSDB looked at the Long Range Acoustic Device (LRAD) at the end of last year. There were a number of judgment issues with it especially surrounding the level of noise being put out and the potential for hearing damage. They are focusing on this as a communication tool rather than a distraction device. There are a number of new communications devices that have come to their attention including the Magnetic Acoustic Device (MAD) and are planning an impact assessment on all of these devices.

*Electrical Devices (TASER<sup>®</sup>X26 and M26<sup>®</sup> Deployed as support).* As many are aware, the HOSDB produced reports on the TASER<sup>®</sup> in both 2002 and 2005. Another report is due out by the end of the December 2006 which brings together ongoing work with the previous studies in a comprehensive 400 page report.

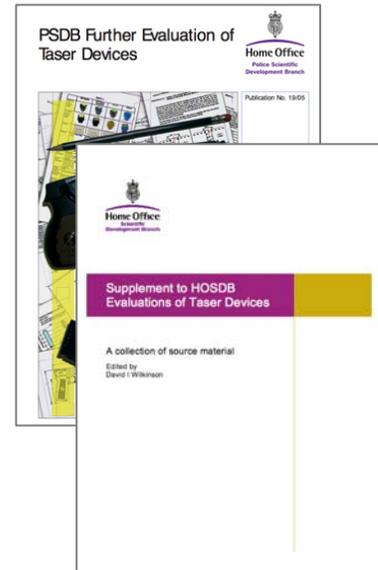
There have been some modifications made by the manufacturers to the cartridges which the HOSDB has assessed. Essentially they are changing the barb – making the barb heavier – and increasing the pressure in the cartridge. The HOSDB is looking at how these changes might affect operational use. These changes increase the accuracy, but also increase the energy, velocity and momentum of the probes, which may have medical consequences.

The HOSDB found that the TASER<sup>®</sup> can cause certain explosives to ignite. Additionally, the unpredictable nature of circuitry of improvised explosive devices (IEDs) may cause detonation. The TASER<sup>®</sup> generates an electromagnetic field which can affect the electronic circuitry. There is also the unpredictability of the person that might be holding an IED trigger device (dead man or thumb switch). The likelihood of a TASER being effective on its first application is not high enough to give confidence that it would provide an instant incapacitation.

The HOSDB has proposed an extension for TASER<sup>®</sup> use in the UK. Currently, use is limited to those with firearms authority. The extension would permit use by other specially trained officers outside of Firearms Authority. The HOSDB continues to monitor all firings and deployments of these devices and has established a database to collate and interrogate related information.

**Special Presentation.** Assistant Chief Constable Ian Arundale of West Mercia Constabulary made a special presentation for the Association of Chief Police Officers.

It has been an unprecedented year for the UK this year. Many things have happened which will probably change the nature and culture of policing. In fact, the changes have been so sweeping that the government has given a lot of money to policing in order to review and address terrorist issues. Assistant Chief Constable (ACC) Arundale first addressed some policing issues then discussed two important case studies where TASER<sup>®</sup>s were used to subdue terrorist suspects. He did not suggest that these instances are necessarily



**HOSDB Supplemental reports on TASER<sup>®</sup>**



representative models for ways to use force in resolving incidents, but rather that they illustrate what has been happening in the UK. Further, they illustrate how a unique culture in relation to the use of force and the use of firearms results in different thought patterns in some UK officers to those that others might see in their jurisdictions internationally.

On 7 July 2005, there were 52 people killed in the terrorist attacks in London. There were also 770 people injured. Although this was perhaps not as large in scale as some of the other attacks around the world, it was a significant issue for the UK. In particular because this was an attack by people who lived and grew up in the UK – they were “home grown” terrorists.

Two weeks later on 21 July, there was the third of four attempted bombings in the UK. Significantly, the arrest of those individuals by a tactical [SWAT] team raised some interesting issues. The following day, there was a shooting of an innocent man, Jean Charles de Menezes, at Stockwell Tube Station. By this time in the UK, there were many counter-terrorist operations running and a large number of surveillance operations. This man was in the wrong place at the wrong time and a series of events resulted in him being shot. In the UK, with 125,000 police officers and 7,500 trained in the use of firearms, only a small portion of police actually carry firearms. This is a major issue and consideration. Every officer deployed on an incident where they believe there are terrorists, have all of these issues in their minds. This was certainly the case on 22 July with second and third bombing attempts and known bombers on the routes in the UK. The threat level was high. All officers in the UK are briefed and use the same coding for describing what the threat is. At the time there was a fairly standard policy and procedure to deal with suicide terrorism. There are some lessons here about not overcomplicating your response in relation to suicide terrorism. The use of force and combating the threat from these individuals can be a very difficult issue.

*Case Studies.* There are two incidents that ACC Arundale briefly outlined. Both of these illustrate a “less-lethal” response against a potential suicide bomber. The first of these was the West Midlands Police operation on 26 July 2005 involving the arrest of one of the suspects in relation to the failed bombings of the 21st – a known bomber. The second was the Greater Manchester Police operation on 23 September 2005, a spontaneous incident where the officers did not know with what they were dealing.

- West Midlands Police Operation. Intelligence suggested that one suspect from 21 July, Yassin Hassan Omar, was in a house in Birmingham. A dynamic entry (SWAT operation) was planned into the address and the use of TASER® was discussed and agreed as one of the tactical options. Officers were armed with conventional firearms, but also had TASER®s. They knew the person in the house was a suspected bomber. At 0515 hours on 27 July, a Tactical Firearms Unit executed an entry into the premises. Two officers located Omar standing in the bath, fully clothed, facing away and carrying a rucksack on his back. When challenged, his hands moved down to his chest and an officer prepared to shoot him. At that point he began to comply with officer instructions and raised his hands above his head. The officers used TASER® and subdued him. There was significant criticism and questioning of how officers used TASER® in this incident, but mainly by people who did not know the finer details of the incident. Some of the recommendations that came out as a result were

that the use of TASER® should remain as a tactical option when dealing with persons thought to be carrying explosives. Even though dealing with a suspected terrorist, they might not have an actual device, the motivation, or the ability to pose a threat. After the bombing on 7 July (7/7), there were nearly 800 calls across the UK reporting terrorist suspects. As it turned out, none of those was a genuine call. They were all well-intentioned, but none led to a suspect. Indeed, the use of TASER® may be the least dangerous of several dangerous options. Additionally, ACPO has now updated their TASER training manual to include TASER® against persons suspected to be carrying explosives.

- Greater Manchester Police Incident (Manchester International Airport). This incident began at 0829 hours on Friday, 23 September 2005, when Qadir Hussain Khan approached the North West Gate Security Post Manchester International Airport with a briefcase. Airport Security reported that a male chased by Security had gone onto the airfield having run through the gate. The guards at the gate were unarmed security guards, not police officers. Mr. Kahn made his way through the area and onto the controlled runway area. Armed police officers arrived on the scene and observed Kahn running and shouting something in a foreign language. At this point, the officers intercepted him. In their minds are all of these other incidents that have occurred and the fact that an innocent man had been shot in the UK – a major event. The officers concluded that Kahn was a suicide bomber, but they decided to work through tactically and not take him down. Kahn ignored all instructions by the police. The officers genuinely believed that he had a bomb in his briefcase. Officers decided to do a “rugby tackle” because he was making his way toward the passenger aircraft. The officers thought that perhaps the option of least harm was to tackle him. If he did have a bomb and it went off, then the officers would likely be killed. If he did not have a bomb, then they selected the correct option. As it turned out, this was an attempt at “suicide by cop.” The individual knew the risk he was likely to pose. He knew that armed officers would likely be called to the incident. He nonetheless made like a suicide bomber and ran for an aircraft. Fortunately for him, the officers selected the option that they did. The TASER® was deployed during the struggle. Khan was arrested under the Terrorism Act of 2000. A controlled explosion was performed on the briefcase – a further examination revealed it did not contain any explosives. Later that day, Kahn was no longer being held under the Terrorism Act but was being detained under the Mental Health Act. The conclusion is that while the option to use CEDs should remain as an operational consideration, so should the full range of force options to include lethal force.

*TASER® and Impact Round Usage.* (Attenuating Energy Projectile is the UK’s replacement of the L21 Baton Round). The TASER is now used by all forces in England, Wales and Scotland. Usage is now up to 539 incidents (discharged at 227 incidents) The Taser is currently only used by officers are armed as part of their deployment to incidents which require an armed response. The UK is moving forward, towards an extension of the trial to other non armed specially trained units who it is envisaged will be deployed to incidents where Taser could be of assistance. What has been seen thus far since the deployment of TASER® is that it has become the less-lethal option of choice by police officers



**Manchester Airport (NW security gate, runway access and controlled runway area)**

*Officers do not have a lot of confidence in impact rounds in the UK, but do have a significant amount of confidence in the TASER® system.*

in the UK to the exclusion of everything else. The use of impact rounds has tapered off significantly. Officers do not have a lot of confidence in impact rounds in the UK, but do have a significant amount of confidence in the TASER® system, even though TASER is not always successful on its first application for various reasons. However, this has not affected the usage of CS or PAVA, since TASER® has only been deployed in a firearms context. The use of TASER® in other situations may be the next stage for the UK. The UK does not use the force continuum, but rather a situational decision making model which trains officers to assess what is in front of them and select the right option, they do not work through a discrete force continuum. Officers in the UK are trained to understand and consider the benefits and limitations of the options which they may choose in order to increase the probability of a positive outcome.

## Workshop Syndicate Sessions - Major Issues, Discussions and Recommendations

After completing an ILEF overview and briefings on the first day, the group participated in three breakout sessions. These sessions addressed aggressive individual control techniques, maintaining public order, ongoing issues with conducted energy devices (CEDs). On the second day of the workshop, three separate breakout groups addressed a series of nine questions related less-lethal weapons in anti-terrorism situations. Each group focused on a different set of three questions, then addressed others as time permitted. Additionally, each was asked to discuss what should be transmitted to manufacturers with regard to less-lethal technologies and anti-terrorism applications. Detailed summaries of these workshop session discussions appear in the sections that follow. Abstracts of these sessions appear below.

**Best LLW Practices: Aggressive Individual Control Techniques.** The purpose of this session was to address issues regarding aggressive individual control techniques. Group members agreed that introduction of new less-lethal devices (including chemical irritants) will not normally change an existing use of force policy. Most jurisdictions have policies where the judgment of individual officers is crucial to employ the least amount of force reasonably necessary. The group also discussed issues dealing with the contamination of officers during arrest, dealing with contaminated subjects and related issues. There was consensus that vendor research must be repeatable. Independent research on chemical irritant projectiles should continue so as not to rely exclusively on vendor research. The ideal weapon for individual control was envisioned to be one which, among other things, would cause immediate incapacitation or compliance at distance with precision. There was consensus that manufacturers had an obligation to describe, and be able to demonstrate, the specific effect of interest. The device had to be both consistent and reliable in operations in order for officers to have some confidence and predictability in deployment. Tests might include a basic six month assessment and a longer term two year in-depth study. Finally, early in development, upper level law enforcement needed to be consulted in order that the impacts on policy and public acceptance could be addressed.

**Maintaining Public Order: Crowds and LLWs.** The purpose of this session was to address issues at the nexus of less-lethal weapons and the maintenance of public order. Deployment of impact munitions in crowds gives rise to issues in relation to policy, tactics, training and post-use audit. One of the most important points derived from group discussions was the critical element of officer safety. In that regard, officers value stand-off distances and the effectiveness of less-lethal weapons. The outcome-driven selection of munitions must be balanced with the amount of injury that is deemed acceptable. This influences the determination of the best the point at which to deploy and appropriate control measures. The group agreed that these systems were generally viewed by law enforcement as force multipliers to prevent assaults, protect bystanders and property, discriminately select targets, separate anarchists from law abiding protesters and to avoid creating or increasing mob cohesion. The group concurred that use of impact munitions necessitated the enabling ability to clearly describe the targeted individual (whether arrested or not) and articulate the reasons it was necessary to employ that level of force. The group generally agreed that chemical irritant munitions were generally of marginal value as a “stand alone” option because of existing range and accuracy limitations. The group felt that future research on chemical irritant projectiles should focus on examining policy issues and strategic considerations as well as exploring and documenting best practices, techniques, and training procedures. Technical research might center on creating more synergistic effects by leveraging the benefits of chemical irritants and the projectile delivery means, while mitigating the drawbacks of each.

**Conducted Energy Devices: Ongoing Issues.** The purpose of this session was to address both emerging and legacy issues surrounding the use of conducted energy devices in law enforcement. There was general consensus that officers were using conducted energy devices (CEDs), primarily the TASER®, as the first option. It was noted that utilizing TASER® early in a situation often results in preventing a situation from spiraling out of control. However, early use may also reduce certain tactical advantages such as distance and the possibility of successful negotiation. There was some discussion regarding the development of technology countermeasures for CEDs which may provide officers with effective protection against civilian models. It was generally agreed that the successful deployment of TASER® within a community hinged on the development of appropriate policy and guidance for use supported by both technical and situational training and a comprehensive review and accountability mechanism for oversight and monitoring. The group arrived at a number of technological observations with respect of system effectiveness both for the user and the subject. Although research has not yet elucidated the definitive biological effects of CEDs, eventual development and acceptance of medical standards internationally was acknowledged to be of great importance. There was consensus that, despite the voluminous research conducted or commissioned by TASER® International, research independent of manufacturers was still important in order to more fully understand CED effects and how they might interact with some preexisting biological conditions. The group generally agreed that the manufacturer role in training should be limited to technical device operation, maintenance, providing technical training packages and assisting with departmental establishment of training programs.

**Operational Policing: Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios – Strategic, Tactical & Technological Concerns.**

The purpose of this session was to address the potential of less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, the group examined strategic and tactical concerns as well as technological concerns. There was consensus that planning for these situations should always consider “collateral damage” and the impact on innocent bystanders. The question of the appropriateness of the response will always be the focus of post incident review and will affect the public acceptability of future counter-terrorism operations. Arguably more important than preparing for planned counter-terrorism activities is more fully developing law enforcement capabilities in terms of technologies, operational strategies, tactics, and policies with regard to spontaneous response to situations. This is an enormous challenge. The group generally agreed that less-lethal technologies that assisted with stopping vehicles quickly, safely and reliably were also important in dealing with some terrorist situations. There was also consensus internationally that a capability that provided the most valuable strategic and tactical advantage would be a reliable way of instantly incapacitating large numbers of people (with instant decontamination). Specifically referenced to here was the Moscow (Dubrovka) Theater incident. Reliability surfaced as an issue that seemed to apply to all of the devices, especially when dealing with the high risk environment of terrorism. The group discussed a long range anesthetic delivery system, similar to an animal tranquilizer dart. The consensus was that despite the challenges, it should be examined. Any less-lethal system should not serve to inadvertently either detonate an explosive or trigger its detonator.

**Operational Policing: Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios – Community Impact and Public Order.**

The purpose of this session was to address the potential of less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, this session examined community impact and public order associated with terrorism scenarios such as suicide bombers, large anti-terrorism investigations, as well as school and other large hostage situations. The group began by discussing community impact issues that should be considered with respect to the deployment of less-lethal weapons specifically where a counter-terrorism policing operation is being conducted. The new reality surrounding terrorism and the police response is that community engagement is critical. The group agreed that any response that police put into place must be balanced with proper community engagement. The use of calmatives was discussed as perhaps the most hopeful tool on the horizon to effectively address the issue of law enforcement establishing control over an individual carrying an improvised explosive device (IED). The group generally agreed that in terms of crowd management, there are a number of tactics, techniques and enabling technologies which assist in *dispersal*. The challenge remains in managing crowd *containment*. It was widely agreed that early intervention allows police to define or shape the situation. A discriminating immobilization weapon (for suicide bombers) is an important area for development. Non-discriminating incapacitating devices or substances might also be appropriate (calmatives), recognizing the potential social acceptability issues. The challenge remains to develop a technology to enable law enforcement to stop a suicide bomber without detonating the bomb.

**Operational Policing: Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios – Individuals Conveying Terrorist Threats.** The purpose of this session was to address the potential of less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, the session examined policy issues and technological capabilities related to dealing with individuals conveying terrorist threats – not necessarily known “terrorists.” There are certainly policy issues that exist in respect of dealing with identified individuals conveying terrorist threats as well as those presenting specific threats. When confronted with an imminent threat, a patrol officer conducts a risk assessment and determines the appropriate response – a *hasty* or *rapid* risk assessment. Additionally, these risk assessments are conducted at command levels based on intelligence – *deliberate* risk assessments. The group generally agreed that focus should remain on the behavior and the level of potential harm to the community and that the policies required for how the officer responds (use of force) are seemingly no different than with more traditional criminal threats. The potential for catastrophic consequences (higher overall risk), possibly driven by intelligence indicators, should influence the officer’s sense of urgency and/or selection of force options. Equipment deployment and training policies for segments of departments need to address the evolving requirements generated by new terrorist threats. Senior practitioners must scrutinize authority levels and push that authority to the lowest level deemed appropriate (individual or command). The group found that there were a number of existing and emerging technologies which might replace the current reliance on impact rounds in dealing with violent individuals. The group acknowledged that pursuing these applications would have some serious public acceptability issues which would need to be addressed.

## Less-Lethal Consultative Forum

For the second year, ILEF members had the opportunity to engage with manufacturers and distributors of less-lethal devices in a consultative session. The purpose was to address questions regarding less-lethal weapons and associated technologies in terms of new threats, capability gaps and new technologies. The theme of the consultative forum was “**Collaborative Strategies – Continuing the Dialogue.**”

The group discussed the challenges in describing operational needs and classification of some of the existing irritant projectile munitions. The need for “immediate” incapacitation and its definition, for example, depends upon the operational context. Additionally, some of these projectiles are intended to merely transport an irritant to the subject at a variety of distances and others are intended to combine the effects of irritants with the effects blunt impact. It was generally agreed that there was a need for a precision irritant projectile that had applications across a variety of ranges in order to simplify officer decision-making.

There are continued concerns regarding the proper articulation of operational requirements. The group acknowledged that in some cases standards for testing and development will continue to be elusive. It was agreed, nonetheless, that the gap between defining a desired situational outcome and describing the needed system effects of a particular technology needed to be

addressed. This has been a universal frustration with both practitioners and manufacturers.

ILEF members presented the operational challenges of dealing with crowds in a terrorist event when the intent is to contain rather than disperse. It was largely agreed that the most important tools in these situations would be ones that enabled or enhanced the ability of law enforcement to communicate effectively with the crowd to keep them informed, vigilant, and prepared.

Identifying, dealing with, and disarming someone who presents himself as a suicide bomber presents a number of new challenges tactically and technologically. The volatility of many of the unstable explosive materials (e.g., TATP) and the use of electronic fuzing mechanisms drives a requirement for significant stand-off distance and precludes, perhaps, the use of certain means such as CEDs. Calmatives, which were formerly rejected, now seem a potentially ideal capability. It was suggested that existing manufacturers of less-lethal technologies would perhaps be able to develop and manufacture delivery systems for such devices, leaving the development of specific agents to pharmaceutical companies. Some of the requirements for such a system would include achieving safe and consistent effects across a broad spectrum of demographics. The group also discussed the need for vehicle stopping technologies. The difference in the military and law enforcement view of these operations was noted. The military view is to stop approaching vehicles (check points, installations, convoy security) whereas law enforcement largely sees the need to stop vehicles that are moving away (vehicle pursuit).

This consultative event was important in continuing engagement between practitioners, law enforcement associations, manufacturers and distributors. It provided an opportunity for a greater appreciation of the issues and concerns surrounding less-lethal technologies.

## Summary and Conclusions

The 2006 Forum addressed many issues related to less-lethal concepts, technologies and deployment. The delegates explored existing technologies and capabilities, policies, and operational requirements as they apply to a number of counter-terrorism operational contexts. The major recommendations are:

1. **Testing Repeatability.** ILEF should encourage manufacturers to consider "repeatability" as an important aspect of test design for their systems. Testing should be readily verifiable by independent researchers replicating manufacturer testing.
2. **Policy Consulting.** ILEF should encourage manufacturers to consider consulting upper level law enforcement early in development in order that the potential impacts on policy, public acceptance and incident management can be effectively addressed.
3. **Operational Requirement – Individuals.** ILEF should communicate to manufacturers the operational requirement for systems that will immediately incapacitate or gain compliance of individual terrorists and other aggressive individuals. Some of the ideal system requirements would include the ability to engage subjects distance (>25m) with precision, no injury to the suspect, no lasting contamination, no long-term effects, no cross-contamination, reusable and easily re-loadable, weather resistant and small enough to be easily carried.

4. **Operational Requirement – Crowds.** ILEF should encourage and support research into technologies and methods to identify and selectively target of anarchists in crowds and others that mean to create havoc and incite riot. The system itself would require an ability to safely and effectively strike subjects at ranges that exceed “missile” throwing range.
5. **Chemical Irritant Projectile Research.** ILEF should encourage and support research on chemical irritant projectiles focused on examining policy issues and strategic considerations as well as exploring and documenting best practices, techniques, and training procedures. Technical research might center on creating more synergistic effects by leveraging the benefits of chemical irritants and the projectile delivery means, while mitigating the drawbacks of each.
6. **Conducted Energy Device (CED) Research.** ILEF should encourage and support continued research in the area of CED biological effects to bring clarity to the issues surrounding “associated deaths” and more fully understand CED effects and how they might interact with some preexisting biological conditions. This research should have the objective of contributing to the eventual development and acceptance of medical standards internationally.
7. **Instantaneous Incapacitation.** ILEF should encourage and support efforts develop an effective and reliable way of instantly incapacitating large numbers of people (with instant decontamination, neutralization, and/or mitigation of the means).
8. **Standards.** ILEF should continue its efforts in taxonomy and testing standards to include defining less-lethal system “reliability” and moving the independent testing and evaluating “test house” concept forward internationally.
9. **Discarded Technologies.** ILEF should lead an effort to re-examine previously discarded less-lethal technologies and approaches and assess their potential for use in counter-terrorism missions and support operations.
10. **Calmatives and Immobilizing Technologies.** ILEF should encourage and support efforts to more fully develop discriminating and non-discriminating immobilization weapons (including but not limited to calmatives) in order to effectively address the issue of law enforcement establishing control over hostage-takers and other explosive-laden terrorists to preclude significant loss of life (bystanders, hostages, law enforcement), recognizing the potential social acceptability issues. This should include, but not be limited to policy examination and technology research and development regarding calmative (anaesthetic/tranquilizer) system(s) that could be safely deployed in a number of operational settings.
11. **Suicide Bombers.** ILEF should encourage and support efforts to more fully develop methods and technologies to stop a suicide bomber without detonating the bomb (to include neutralizing explosives at range).
12. **Distraction Devices.** ILEF should encourage and support efforts to enhance devices causing temporary/flash blindness in order to expand the exploitation window these distraction devices create.

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## WORKSHOP SESSION 1:

# Best LLW Practices:

# Aggressive Individual Control Techniques

CHAIR: Dr. Viktor Bovbjerg, US

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*The purpose of this session, led by Dr. Viktor Bovbjerg of the University of Virginia, was to address less-lethal weapon best practices and issues regarding aggressive individual control techniques.*

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## Issues with Chemical Irritant Projectiles

There are issues with respect to police, tactics, training, arrest, post incident management and the use of chemical irritant projectiles. Tactics and training are largely dependent upon individual agency needs. Group members agreed that introduction of a new less-lethal devices (including chemical irritants) will not normally change an existing use of force policy. Most jurisdictions have policies where the judgment of individual officers is crucial. These policies require the least amount of (reasonable) force required to accomplish a goal. Additionally, departments typically follow manufacturer's recommendations with regard to weapon or device operation.

In regards to tactics, most departments are concerned about reliability, consistency, accuracy, effectiveness, and target (subject) discrimination. This is no different than with other less-lethal devices. Officers must have confidence that the "device" or "tool" will work.

There are also issues dealing with the contamination of officers during arrest. Officers should be prepared (mentally and physically) for contamination. This is done through training and, in some cases, deployment of protective equipment to limit or eliminate the effects on officers.

After the use of such technology, there will always be logistics issues (e.g., transportation and medical) that must be dealt with by the officer. These include those surrounding the response and condition of the subject as well as the potential contamination of those who attend to him. Contamination concerns also include how the agent might affect others at the site of the incident, subject transportation means (patrol car, ambulance), other supporting sites (police station, hospital) and decontamination procedures.

There was consensus that vendor research must be repeatable. Independent research on chemical irritant projectiles should continue so as not to rely exclusively on vendor research. Officers must know the actual capabilities and limitations of the device.

Most in the group thought that vendors generally did a good job communicating with line officers about their devices and how they might be improved. However, there also was a general perception that those involved with incident management and policy-making should be consulted during that process.



**Dr. Viktor Bovbjerg, University of Virginia**

There was discussion regarding the importance of centralized test facilities. In essence, the UK has this in the HOSDB (formerly the Police Scientific Development Branch) and Canada in its Canadian Police Research Center (CPRC). In the US, such research is normally conducted through the NIJ, though the federal system in the US precludes any resulting centralized policy or procurement directives. Results of research that might indicate a need for a policy change or the adoption of a new procedure, at best might be tied to federal grant funds to influence the necessary change.

## The Ideal Less-Lethal Individual Control Weapon

The group discussed the Electronic Operational Requirements Group of the ILEF and how they have been attempting to quantify the ideal weapons in terms of operational requirements. The ideal weapon for individual control would cause immediate incapacitation or compliance. Next would be the ability to deploy the weapon at distance with precision. It was not the intention of the group to quantify this because it will differ based on operational context. However, a minimum of 25 meters seemed reasonable for most situations. Ideally, there should be no injury to the suspect, no lasting contamination and no long term effects. When an officer approaches a subject who has been on the receiving end of a chemical irritant projectile, the officer should not be concerned with cross-contamination. The device should also be reusable and easily re-loadable to allow for cost effective training. Additionally, the weapon should be small enough to be easily carried and weather resistant to limit the effects of the environment.

Affordability is also important to allow for use at smaller and rural departments, where there are often not any significant budget allocations for technology improvements. Affordability was also discussed in a more holistic manner as a trade-off between the budget burden of purchasing, training and deploying the system and the return on investment for saved lives and avoided lawsuits. As with most of these systems, a fast recovery time is vital as is ease of operation. Finally, there should not be a significant amount of training required to use the system. A portion of the training should be operationally based.

## Operational Triggers

The group examined the issue of identifying specific operational 'triggers' or indicators for the patrol officer that might lead to the employment of certain LLWs, technologies or techniques when dealing with overly aggressive individuals. While there might be operational triggers, they will likely differ based on a number of variables. These include the jurisdiction, existing policies on use of force, experience of the officer, level at which decision authority exists, condition of the subject, environmental factors, and many others. Identifying specific triggers that apply to all situations is not possible. Rather, training and experience of those in a position to use and authorize use is vital to ensure judgment regarding use of force is rational, appropriate and consistent with policy.

## Issues for Manufacturers

The last subject the group discussed was the identification of issues for manufacturers regarding the employment of LLWs against aggressive individuals. The discussion revolved around the reliability and validation of manufacturer claims. There was consensus that manufacturers had an obligation to describe, and be able to demonstrate, the specific effect of interest. The device had to be both consistent and reliable in operations in order for officers to have some confidence and predictability in deployment. The group also felt that manufacturer testing of these devices should be based on protocols that could be replicated by an independent source. Testing should not be limited to sterile laboratory tests, but include operational scenario-based tests, and these not limited to “best case” scenarios. Variables might include weather, clothing, innocent bystanders, posture, subject movement, and subject mental state. One concept was to develop a two-tier test (short and long term) similar to some of NIJ’s testing. These tests might, for example, include a basic six month assessment and a longer term two year in-depth study. Finally, early in development, upper level law enforcement needed to be consulted in order that the impacts on policy and public acceptance could be addressed.

## Recommendations

- ILEF should encourage manufacturers to consider “repeatability” as an important aspect of test design for their systems. Testing should be readily verifiable by independent researchers replicating manufacturer testing.
- ILEF should encourage manufacturers to consider consulting upper level law enforcement early in development in order that the potential impacts on policy, public acceptance and incident management can be addressed.
- ILEF should communicate to manufacturers the operational requirement for systems that will immediately incapacitate or gain compliance of individual terrorists and other aggressive individuals. Some of the ideal system requirements would include the ability to engage subjects distance (>25m) with precision, no injury to the suspect, no lasting contamination, no long term effects, no cross-contamination, reusable and easily reloadable, weather resistant and small enough to be easily carried.

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## WORKSHOP SESSION 2:

# Maintaining Public Order: Crowds and Less-Lethal Weapons

**CHAIR: Dr. John M. Kenny, US**

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*The purpose of this session, led by Dr. John Kenny of the Pennsylvania State University, was to address issues at the nexus of less-lethal weapons and the maintenance of public order.*

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### Impact Rounds

Impact munitions are often considered for use in crowd management, the more discriminating of these against specific individuals within a crowd. This includes targeting those who may present a threat with a conventional firearm or other lethal weapons. Certainly deployment of such technologies in these scenarios gives rise to issues in relation to policy, tactics, training and post-use audit.

One of the most important points derived from group discussions was the critical element of officer safety. In that regard, officers value stand-off distances and the effectiveness of less-lethal weapons.

The selection of a particular munition for maintaining public order is driven by desired outcome or end state – that is, what law enforcement is trying to achieve. The group agreed that police cannot use these systems as punitive tools. There has to be a purpose. The ramifications and consequences should be thought through. Interestingly, at the end of the day, each shot taken has a corresponding story that goes with it. Every round has to be accounted for and therefore every shot must be well-considered.

This outcome-driven selection of munitions must also be balanced with the amount of injury that is deemed acceptable. These would then influence the decision-making with regard to determining the point at which it would be appropriate to deploy. Different agencies incorporate different control measures in order to manage and control deployment of these systems.

The group agreed that these systems were generally viewed by law enforcement as force multipliers to prevent assaults, protect bystanders and property, discriminate select targets, separate anarchists from law abiding protesters and to avoid creating or increasing mob cohesion. Police officers in public order situations cannot possibly control a crowd “one-on-one.” There are better and smarter methods to include leveraging less-lethal weapons as a force multiplier. Members of the group each had examples of stories and situations where had it not been for less-lethal weapons or alternative weapons, the crowd management challenge would have been much more difficult. The group agreed that within a crowd of 1,000 people, 950 of them could be average-looking people. It is the ability to discriminate between the



**Workshop discussions**

vast majority of a crowd and those that mean to create havoc and incite riot that is at issue. Identifying and subsequent selective targeting of these individuals is an important aspect of crowd management. The group noted with interest the approach now adopted within the UK. Impact rounds are no longer used as a crowd control measure. The new attenuating energy projectile (AEP) has been designed for use as a less-lethal option in situations where officers are faced with individual aggressors whether such aggressors are acting on their own or as part of a group. The AEP is intended for use as an accurate and discriminating projectile, designed to be fired at individual aggressors.

Operational guidance issued by ACPO is very clear that in the event of it becoming necessary to use an AEP in a public order situation, this must be restricted to use against clearly identified individuals where:

- Those individuals are presenting a threat which must be countered; and
- Other tactical options available for countering the threat posed are considered inappropriate in the circumstances.

The group considered that there was great merit in this approach. They also endorsed the view the use of a kinetic energy device in a situation of public disorder may have a profound impact on crowd dynamics with implications for public safety and order and that this should, as in the UK, form part of the operational advice to commanders.

Impact munitions can also be used in a supporting role to enhance other force options, to facilitate making arrests and as preemptive strikes against assailants within a crowd (e.g., those attempting to employ Molotov cocktails, firearms or improvised explosive devices). While an officer may justifiably employ lethal force in many such situations, depending of the circumstances, perhaps there might be a better outcome if a less-lethal response is available and selected.

The group concurred that use of impact munitions necessitated the enabling ability to clearly describe the targeted individual (whether arrested or not) and articulate the reasons it was necessary to employ that level of force. The system itself required an ability to safely and effectively strike targets at ranges that exceed "missile" throwing range.

## Chemical Irritant Projectiles

The group similarly considered the use of chemical irritant projectiles in public order situations and the accompanying issues with respect to policy, tactics, training, arrest, and post incident management.

The group generally agreed that such munitions were of marginal value as a "stand alone" option because of existing range and accuracy limitations. Some of these systems, however, were deemed inexpensive enough to openly compete with other, perhaps more effective, options for mob/riot scenarios. There are some drawbacks to using these systems exclusively or in concert with other options against individual targets at close range or when contamination must be limited to small areas for short durations (e.g., inside buildings, jails, prisons). On the other hand, there are also benefits in terms of defending terrain such as fences and barricades.

Until the range and accuracy of chemical irritant projectiles are improved to the point where these devices provide support for other tactical options, particularly extended range impact munitions, they will not be appealing in a public order situation. At that point, they should be suitable for discriminate targeted use against a particular individual. Operational guidance should highlight public safety and issues associated with accuracy - point of aim (POI) and point of impact (POI) or mean point of impact (MPI). Given the current shortcomings, depending on the anticipated environment and circumstances, each individual agency needs to determine the adequacy of these options.

## Ideas for Further Study

The group felt that future research on chemical irritant projectiles should focus on examining policy issues and strategic considerations as well as exploring and documenting best practices, techniques, and training procedures. Technical research might center on creating more synergistic effects by leveraging the benefits of chemical irritants and the projectile delivery means, while mitigating the drawbacks of each.

## Recommendations

- ILEF should encourage and support research into technologies and methods to identify and selectively target those in crowds and others that mean to create havoc and incite riot (anarchists). The system itself would require an ability to safely and effectively strike subjects at ranges that exceed “missile” throwing range.
- ILEF should encourage and support research on chemical irritant projectiles focused on examining policy issues and strategic considerations as well as exploring and documenting best practices, techniques, and training procedures. Technical research might center on creating more synergistic effects by leveraging the benefits of chemical irritants and the projectile delivery means, while mitigating the drawbacks of each.

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## WORKSHOP SESSION 3:

# Conducted Energy Devices: Ongoing Issues

**CHAIR: Mr. Graham Smith, UK**

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*The purpose of this session, led by Mr. Graham Smith of the UK Home Office Scientific Development Branch, was to address both emerging and legacy issues surrounding the use of conducted energy devices in law enforcement.*

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The session began with a discussion regarding the perception of differences in how the UK and the US view use-of-force. There is a wide perception (promulgated largely by non-practitioners) that US law enforcement is required, in any situation, to begin with the minimum force options available and work their way through the spectrum of force until they reach the appropriate level (the level that resolves the situation). As pointed out by several members of the group, this is not correct. As in the UK, most agencies in the US discuss and train use-of-force by means of a force continuum or spectrum. It provides a means by which appropriate levels of force might be discussed. In application, the officer selects the appropriate level of force based on the situation and its context, the capabilities of the officer, the experience and training of the officer, the technology available and other variables.



**Mr. Graham Smith of the Home Office Scientific Development Branch**

## Impact on Other Less-Lethal Options

Deployment of conducted energy devices (CEDs), primarily TASER®, within many jurisdictions has affected the consideration and deployment of other tactical options and less-lethal weapons. There was general consensus that officers were using TASER® as the first option. This was, perhaps, borne out of growing confidence in the system over time and a reduced likelihood of injury to both officers and subjects (actual and perceived) – as well as the accompanying potential to reduce the likelihood of complaint and post-incident investigation. Anecdotally, in some jurisdictions there appears to be an increase in use of TASER® in one-on-one encounters, but an increase in other less-lethal options (e.g., OC) in multiple suspect situations. It was conjectured that this might represent a learning curve as the strengths and limitations of different options in various situations become clearer over time.

Nonetheless, there was agreement that there are many lessons to be learned around approaches to training, developing and implementing policy, and accountability. Additionally, it was noted that utilizing TASER® early in a situation often results in preventing a situation from spiraling out of control. However, early use may also reduce certain tactical advantages such as distance and the possibility of successful negotiation. In contrast, some jurisdictions appear to be experiencing inappropriate TASER® use where officers attempt to deploy the weapon when the subject is too close. They begin to withdraw as they are still attempting to pull out the TASER® rather than using more appropriate “hands-on” techniques to gain control of a subject.

Finally, there was some discussion regarding the development of technology countermeasures for CEDs (e.g., Thor Shield). These devices seem to be effective and may provide officers a level of protection against civilian models. Currently, manufacturers of these technology countermeasures appear to be focused on the law enforcement and military markets, not civilians.

It was generally agreed that the successful deployment of TASER® within a community hinged on the development of appropriate policy and guidance for use supported by both technical and situational training and a comprehensive review and accountability mechanism for oversight and monitoring.

## Technological Observations

*The ILEF views this open and responsible approach to research and testing [by TASER® International] as a model for other manufacturers to emulate.*

It is important to note that TASER® International is the leader in the development and manufacture of CEDs. The ILEF recognizes that this vendor has invested in and conducted exhaustive research in order to increase device effectiveness as a tool for law enforcement while minimizing injury to subjects. Additionally, they have cooperated with and supported both government and independent researchers to continue to grow the body of knowledge on these systems. The ILEF views this open and responsible approach to research and testing as a model for other manufacturers to emulate.

Although the TASER® has gained wide acceptance as a less-lethal technology of choice among many in law enforcement, the group arrived at a number of technological observations with respect of system effectiveness both for the user and the subject.

First, of the probe length options available, the trend seems to favor the use of the longer versus the shorter versions. In North America, agencies are moving towards use of the longer probes as they are perceived to be coupled with increased effectiveness. In the UK, there are lingering concerns over possible medical issues associated with a deeper probe penetration.

In regards to range capabilities, there were differing views as to the optimal range for use. Certainly the existing capabilities do not exceed the absolute lengths of the non-conductive wires (21 to 35 feet). There were differences of opinion, however, regarding the maximum effective or optimal firing range for these devices. The ability to achieve TASER® probe impact with both upper and lower darts certainly becomes more difficult at the maximum ranges. The group also agreed that the ability to adjust the “stun” duration (and a corresponding ability to turn it off) would be an improvement over existing systems.

There was discussion of the future wireless (untethered) capability. The expectations were that this would allow for both multiple shots and longer range (and perhaps more accuracy/precision). The camera features were also discussed by the group. Generally, this capability has been well-received by law enforcement. However, there are some concerns with regard to the “tunnel vision” of the videos and reduced or lost context. It was suggested that this might be an area for improvement. Additionally, cameras (not just affixed to CEDs) have some policy implications. They are leading some to question why such a capability is not available for all force options.

Finally, although there was no general agreement, there was some concern expressed by members of the group regarding the proliferation of the civilian models of CEDs and how public access and use of the technology might impact policing. The attempted civilian use of a TASER® against a police officer, for instance, might justify the use of lethal force by the officer. In this regard, the group suggested that the development of a disabling device to stop other CEDs and/or a remote disabling or tracking device (e.g., stolen devices) might be useful. Although research has not yet elucidated the definitive biological effects of CEDs, eventual development and acceptance of medical standards internationally was acknowledged to be of great importance.

## Issues for Manufacturers

The group wrapped up its session by discussing those issues to be articulated to manufacturers regarding medical, psychological, operational or technical assessments of CEDs. In the US, law enforcement agencies seem to be leaning toward the longer probes/darts. Anecdotally, there doesn't appear to be an increase in the probability of injury, yet they allow for better penetration of clothing. Some jurisdictions have decided to use the longer probes as a standard, with the shorter probes available in the event they encounter a subject with little or no clothing.

Most agreed that while they felt the TASER® (in particular) was "safe," the issues surrounding "associated deaths" and isolation of serious biological effects needed more clarity. There was consensus that, despite the voluminous research conducted or commissioned by TASER® International, research independent of manufacturers was still important in order to more fully understand CED effects and how they might interact with some preexisting biological conditions.

Although there was much discussion on the role of manufacturers in training, the group generally agreed that the manufacturers role should be limited to technical device operation, maintenance, providing technical training packages and assisting with departmental establishment of training programs. The departments should always conduct the tactical, guidance, policy and situational training of these systems to ensure officers deploy them within the use of force policies of the particular department. The group generally agreed that this was, in their view, consistent with the view of most manufacturers.

The psychological impact of CEDs on subjects has been illuminating. Subjects often become defiant when an officer presents a lethal weapon. They do not believe an officer will fire. When an officer presents a CED, however, often that is enough to gain compliance, since these subjects believe officers are very willing to actually fire the device. Some in the group related experiences where merely pointing the device, orienting the laser dot, or verbally warning, "stop or I will taze you" was enough to gain compliance.

Of note also was the sense from many of the group members that police use of CEDs to gain compliance of subjects who are suffering from mental health problems (e.g., schizophrenia) has found broad support among mental health groups (The Schizophrenic Society in Canada, The Schizophrenic Association in the UK, and the National Institute of Mental Health in the US were all mentioned).

## Recommendation

- ILEF should encourage and support continued research in the area of CED biological effects to bring clarity to the issues surrounding “associated deaths” and more fully understand CED effects and how they might interact with some pre-existing biological conditions. This research should have the objective of contributing to the eventual development and acceptance of international medical standards.

## WORKSHOP SESSION 4:

# Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios: Strategy, Tactics and Technology

**CHAIR: Assistant Chief Constable Ian Arundale, UK**

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*The purpose of this session, led by Assistant Chief Constable Ian Arundale of the West Mercia Constabulary representing the Association of Chief Police Officers, was to address the potential of less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, the group examined strategic and tactical concerns as well as technological concerns.*

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## Strategic and Tactical Considerations

The group first discussed the relevance of less-lethal options in counter-terrorism operations and the associated strategic and tactical considerations. The discussion considered member experiences with, and knowledge of, both historical counter-terrorism operations and more recent operational experiences relevant to future use.

The spectrum of potential events run from those that allow for in-depth planning to those that require rapid or spontaneous response of an officer on the scene. The Northern Ireland experience included many counter-terrorism operations that were planned ahead of time based on available intelligence. Certainly, less-lethals were a consideration in the operational planning, as well they should. There was consensus that planning for these situations should always consider “collateral damage” and the impact on innocent bystanders. The question of the appropriateness of the response will always be the focus of post incident review and will affect the public acceptability of future counter-terrorism operations.

The group observed that the mindsets of officers often change when the term terrorism is used in an operation. The consensus was that defining terrorism should not be the focus, rather dealing with the associated crime that presents itself. Additionally, there is a perception that lethal force is the only option to deal with terrorists, which can narrow the available tactical options in an intervention. There was also a perception that less-lethal is not often considered by military counterparts in similar situations. There is, however, a high degree of accountability in Europe and North America for police, even when dealing with terrorists. Moreover, an apprehended terrorist might provide valuable intelligence regarding terrorist networks, support groups, and future activities.

Arguably, more important than preparing for planned counter-terrorism activities is further developing law enforcement capabilities in terms of technologies, operational strategies, tactics, and policies with regard to spontaneous response to situations. This is an enormous challenge. In many



**Assistant Chief Constable Ian Arundale  
of the West Mercia Constabulary**

cases, the response of the first officers on the scene can set the stage for whether or not the situation is successfully resolved. Less-lethal technologies certainly provide these officers with a broader range of options.

The group generally agreed that less-lethal technologies that assisted with stopping vehicles quickly, safely and reliably were also important in dealing with some terrorist situations. There was also consensus internationally that continuing to provide street officers less-lethal options was important in enabling them to better influence these situations. They did reach general agreement that a capability that provided the most valuable strategic and tactical advantage would be a reliable way of instantly incapacitating large numbers of people (with instant decontamination). Specifically referenced to here was the Moscow (Dubrovka) Theater incident.

## Technological Concerns

The group also examined the technological concerns with regard to employing less-lethal weapons or devices in response to a terrorist event (as part of a counter-terrorism operation or in its aftermath). Reliability surfaced as an issue that seemed to apply to all of the devices, regardless of their role. Although reliability is always important, it was viewed as especially so when dealing with the high risk environment of terrorism. How one measures reliability is another question. One NIJ statistic (cited without reference) is that in the US, police are only effective 25% of the time when they use lethal firearms. The expectation of less-lethal weapons, however unrealistic, is that they are 100% effective all of the time at accomplishing what they need to do with no deaths or serious injuries. This becomes extremely important as a matter of both policy and public acceptability.

Size and portability are important. If officers want to have more options for less-lethal in a pre-planned operation, they need to be able to carry them all. Having too many options, however, has long been a concern with regard to complicating (and slowing down) the decision-making process as well as posing potential liability issues. As mentioned before, stand-off is always an issue. The ability to stop a threat from a safe distance is critical – perhaps more so in these situations. The group discussed a long range less-lethal delivery system where the operator uses a sighted system from a safe distance to immobilize, or render unconscious, a specific suspect. Whether or not this particular technology was possible, the consensus was it should be examined. Any less-lethal system should not serve to inadvertently either detonate an explosive or trigger its detonator. These high risk situations with potentially devastating consequences require some innovative solutions. Perhaps some of the solutions lie in re-visiting previously discarded technologies and approaches.

## Issues for Manufacturers

The group addressed some of the issues that speak to manufacturers. Consistent with previous workshops, establishing independent testing and evaluating organizations was seen as important to support law enforcement agencies around the globe. There might be some concern from

manufacturers. However, they should also view such bodies as a resource to assist with test scope, test design, and standards.

Immediate and reliable incapacitation with a tolerable level of injury to the subject was seen as the operational requirement most significant to pass to manufacturers. Additionally, new concepts should be adaptable to existing weapon systems (for street level use).

The group also addressed other issues for manufacturers. Generally, the group thought it important for manufacturers to be more conscious of the names being given to their products. They should name products after what they do, being sensitive to cultural/social issues. Sensational names might get the initial publicity they purport to seek, however, the longer view is that they are a disservice to both the systems and the police they support as they can thwart public acceptability and complicate their deployment considerably. Customer service was also viewed by the group as important after the sale. Generally, the group believed that manufacturers should commit to making their tactically significant products unavailable to the public.

## Recommendations

- ILEF should encourage and support efforts to develop an effective and reliable way of instantly incapacitating large numbers of people (with instant decontamination, neutralization, and/or mitigation of the means).
- ILEF should continue its efforts in taxonomy and testing standards to include defining less-lethal system “reliability” and moving the independent testing and evaluating “test house” concept forward internationally.
- ILEF should lead an effort to re-examine previously discarded less-lethal technologies and approaches and assess their potential for use in counter-terrorism missions and support operations.

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## WORKSHOP SESSION 5:

# Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios: Community Impact and Public Order

**CHAIR: Colonel Andy Mazzara, US**

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*The purpose of this session, led by Colonel Andy Mazzara of The Pennsylvania State University was to address the potential of these less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, this session examined community impact and public order associated with terrorism scenarios such as suicide bombers, large anti-terrorism investigations, as well as school and other large hostage situations (e.g., Beslan School Number One and The Moscow Dubrovka Theatre).*

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## Community Impact Issues

The group began by discussing community impact issues that should be considered with respect to the deployment of less-lethal weapons specifically where a counter-terrorism policing operation is being conducted. This is perhaps most important in areas where there is strong community identity, or a community to which the terrorist suspect may belong. The new reality surrounding terrorism and the police response is that community engagement is critical. How well we work together will ultimately determine whether we defeat terrorism.

The history of the UK with terrorism has largely been with its Northern Ireland experience. The Events in Northern Ireland provide excellent examples of lessons in the benefits of positive engagement with all sections of the community, particularly during time of intense conflict or community tension. The Police Service of Northern Ireland (PSNI) has significantly changed its methods of policing and dealing with the community. For many years, the police in Northern Ireland found themselves alienated from sections of the communities in Northern Ireland by the actions they took in dealing with terrorist threats and atrocities. The ensuing public disorder and conflict with the police often assisted the terrorist groups in their recruiting efforts. Now the PSNI looks closely at community impact considering available intelligence, local police officer views of what is happening, even contacting community representatives. Risks to officers and appropriate tactics are also considered. Consideration is given to reducing the footprint or profile of the police to keep the impact on the community to a minimum. Engagement of community leaders in advance has proven beneficial. The proper handling of the community can prevent galvanization of the community against the police.

In London, these threats did not have as much to do with community engagement as they did with security and investigation. This changed on 7 July 2006 after the London Tube was attacked. Throughout the many counter-terrorism operations that were conducted in the ensuing months, the media



**Colonel Andy Mazzara,  
Penn State ARL**

and community response was largely supportive of police efforts. This changed to being highly critical in the wake of the Menezes shooting at Stockwell Tube Station. This change underscored the need to address community impact, media relations as well as pre-/post-event management.

The changing threat for the UK is perhaps a new threat for Canada and the US. The group agreed that any response that police put into place must be balanced with proper community engagement. Emotions play an enormous part in how the community responds. Any use of force will elevate the social temperature. An important point in this regard is that police cannot consider any faith group as a single homogeneous block. A single solution will not likely work for all. There are extreme orthodox views and radical views in many of these groups as well as those who are strong in their faith yet want to engage with the community and police in maintaining public safety and order.

## Technologies

The group then addressed appropriate weapons. They looked at systems in existing inventories that might be useful in a suicide bomber context. While there are some technologies available, there was group consensus that the operational need is for a system to be able to incapacitate an individual rapidly. There was particular concern expressed regarding the use of less-lethal weapons against an individual carrying an improvised explosive device (IED). Some of the alternatives mentioned included sticky foam, net guns, the Area Denial System (ADS), and malodorants. The use of calmatives was discussed as perhaps the most hopeful tool on the horizon to effectively address the issue of law enforcement establishing control over this type of situation. Can manufacturers develop an impact weapon that can deliver calmatives?

## Terrorism and Public Order Issues

In the aftermath of a terrorist attack, or in a response-arrest-type operation, there may be public order tensions and the presence or emergence of hostile crowds that threaten public order. There are a number of issues with respect to the use of available less-lethal weapons.

The group generally agreed that in terms of crowd management, there are a number of tactics, techniques and enabling technologies which assist in dispersal. Dispersal methods may not be different from most conventional situations. The challenge remains, however, in managing crowd containment. Less-lethal weapons may have reduced effectiveness when used for containment, particularly in a panic situation when there are radiological, biological or chemical contamination issues present. Physical barriers (e.g., stadiums, geography, barriers) are instrumental in containment. However, allowing a crowd to go from one area to another area may better suit police needs than emplacing physical barriers. Certainly there is an issue of authority to contain or enforce quarantines. The group generally agreed that communications becomes the more important less-lethal tool versus the weapon, device or technology. In these situations, the crowd dynamics and the impact of human psychology is different and perhaps more important than during protests. One would expect there to be much more anxiety than anger,

which should influence the approach of law enforcement. For instance, addressing the needs of contaminated victims may enable their cooperation and containment. Addressing needs (food, water, medical attention, decontamination), and effectively communicating to victims that it is in their best interests to cooperate is perhaps the most effective less-lethal option in these situations. In fact, some group members speculated that the contained group could then become “self-policing” as uncooperative individuals are perceived as inhibiting the group from having their needs addressed.

There are considerations for officer safety versus public safety as well. The officer remains focused on stopping the illegal act being committed. While the environment may be different, the law and policies governing police use of force do not change. However, the threat posed by contaminated persons might constitute one of death or grievous bodily harm by virtue of the nature of the contaminant. The use of malodorants was discussed as a potential means to enhance marking of areas which might be contaminated to keep the public from entering those areas.

It was widely agreed that early intervention allows police to define or shape the situation. This minimizes the potential for escalation of both the conflict and the police response. Less-lethal weapons use early may be required to preclude the necessity for lethal force later. Often knowing when and how to use a particular weapon is more important than the specific choice of a weapon.

## Issues for Manufacturers

Ideally, and as with many other scenarios, the group thought the ability to discriminate between “good guys and bad guys” was an important operational requirement. In some cases, there might be a need to immobilize rather than incapacitate. Therefore, a discriminating immobilization weapon (for suicide bombers) is an important area for development. Non-discriminating incapacitating devices or substances might also be appropriate (calmatives or anesthetics), recognizing the potential social acceptability issues. One possibility was the development of an impact weapon that can deliver discriminating calmatives. The challenge remains to develop a technology to enable law enforcement to stop a suicide bomber without detonating the bomb. Another area to examine perhaps is enhancement of devices causing temporary blindness (flash blindness). Extending the effective time can expand the exploitation window these distraction devices create. There always seems to be a desire to increase stand-off distance of some less-lethal weapons. Although this has been discussed with regard to CEDs and one-on-one encounters, stand-off becomes more crucial perhaps when dealing with suicide bombers.

## Recommendations

- ILEF should encourage and support efforts to more fully develop discriminating immobilization weapons (to include, but not limited to, calmatives) in order to effectively address the issue of law enforcement establishing control over hostage-takers and other explosive-laden

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terrorists to preclude significant loss of life (bystanders, hostages, law enforcement).

- ILEF should encourage and support efforts to more fully develop non-discriminating incapacitating devices or substances (calmatives or anesthetics) to address hostage situations, recognizing the potential social acceptability issues.
- ILEF should encourage and support efforts to more fully develop methods and technologies to stop a suicide bomber without detonating the bomb (to include neutralizing explosives at range).
- ILEF should encourage and support efforts to enhance devices causing temporary/flash blindness in order to expand the exploitation window these distraction devices create.

## WORKSHOP SESSION 6:

# Potential Less-Lethal Applications and Issues in Anti-Terrorism Scenarios: Policies and Technologies for Individuals Conveying Terrorist Threats

**CHAIR: Constable Casey Brouwer, Canada**

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*The purpose of this session, led by Constable Casey Brouwer of the York Regional Police, was to address the potential of less-lethal devices to successfully resolve, or effectively contribute to the resolution of, anti-terrorism scenarios in a domestic setting. In particular, the session examined policy issues and technological capabilities related to dealing with individuals conveying terrorist threats – not necessarily known “terrorists.”*

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Members of the group related several actual incidents which colored the ensuing discussions. The first of these was the shooting of Jean Charles de Menezes at Stockwell Tube Station in London during an extremely heightened state of terrorist alert in the UK. The second was the shooting of Rigoberto Alpizar at the Miami Airport by US Air Marshals. Neither of these men were terrorists, though both conveyed behaviors (implicit and explicit, respectively) which drove the decision to lethal use of force. Conversely, an incident in Washington, DC whereby a man approached a patrol officer and threatened to blow himself up with what appeared to be a bomb strapped to his waste, was apprehended after the officer used pepper spray. In this instance, the officer recognized the individual as a homeless man from his “beat” who was somewhat disturbed. In all of these cases, officers incorporated risk assessment into their decision process and operated within policy guidelines.



**Constable Casey Brouwer,  
York Regional Police**

## Policy Issues

There are certainly policy issues that exist in respect of dealing with identified individuals conveying terrorist threats as well as those presenting specific threats. Theoretically, when confronted with an imminent threat, a patrol officer conducts a risk assessment and determines the appropriate response – a *hasty* or *rapid* risk assessment. Additionally, these risk assessments are conducted at command levels based on intelligence – *deliberate* risk assessments. Risk assessments, regardless of the level, include determining the specific threat (e.g., knife, handgun, explosives, chemicals, biological hazard, radioactive material) and the potential consequences (e.g., negligible, moderate, catastrophic based on context). Terrorism in general remains a confusing area. There are many who believe these individuals should be treated no differently than any other criminal. In fact, the group generally agreed that focus should remain on the behavior and the level of potential harm to the community. The group also agreed that while there are issues related to collateral damage and innocent bystander risk which must be

addressed with policy and training. The policies required for how the officer responds (use of force) are seemingly no different than with more traditional criminal threats.

The potential for catastrophic consequences (higher overall risk), possibly driven by intelligence indicators, should influence the officer’s sense of urgency and/or selection of force options. While many in the group felt that standing use of force policies should be inclusive, others felt that perhaps some less-lethal options should be specifically excluded. The issue here is determining whether the introduction of a particular less-lethal option would reduce or actually elevate the risk.

Equipment deployment policies for segments of departments (who gets what) need to address the evolving requirements generated by new terrorist threats. Commensurate with each of these, training policies must include terrorist threat situations to empower officers to safely and appropriately intervene (i.e., provide then the proper risk assessment tools at each level). Finally, senior practitioners must scrutinize authority levels and push that authority to the lowest level deemed appropriate (individual or command). Hesitation might make the difference between a successful outcome and a catastrophe.

### Dealing with Terrorists – Violent Individuals

The group next explored discriminating less-lethal technologies for dealing with violent individuals. In particular, they discussed those with ranges between seven and forty meters and beyond. The group found that indeed there were a number of existing and emerging technologies which might replace the current reliance on impact rounds in some of these situations (see table below).

EXISTING	EMERGING
<ul style="list-style-type: none"> <li>● Canine;</li> <li>● Water cannon;</li> <li>● Current chemical (RCA) delivery devices;</li> <li>● Mechanically launched distraction devices;</li> <li>● Malodorants;</li> </ul>	<ul style="list-style-type: none"> <li>● Active Denial System (ADS) technology;</li> <li>● Extended Range Electronic Projectile (XREP®);</li> <li>● New chemical (RCA) delivery devices;</li> <li>● Robots (enabling);</li> <li>● Sticky foam (new operational applications);</li> <li>● Anesthetic/calmativ projectiles/systems</li> </ul>

Much of the discussion centered on the conceptual development of a calmativ (anesthetic/tranquillizer) system that could be safely “operationalized.” At issue is properly articulating the operational need in order that manufacturers can develop a means to deliver anesthetics/tranquillizers at tactically significant ranges. The group acknowledged that pursuing these applications would have some serious public acceptability issues which would need to be addressed.

## Issues for Manufacturers

These applications would have to consider proper dosages and the need to incapacitate an individual until they are in custody. Considerations here also include the delivery means (of which there might be a number – to include “smart” systems), a broad range of demographics, reversibility (antidotes and dosages), onset times, and times of incapacitation.

## Recommendation

- ILEF should encourage and support policy examination as well as technology research and development regarding calmative (anesthetic/tranquilizer) system(s) that could be safely deployed in a number of operational settings.

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## MANUFACTURER CONSULTATIVE SESSION:

# Operational Requirements, Collaborative Strategies and the Horizon

**CHAIR: Superintendent Colin Burrows (Retired), UK**

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*The purpose of this Session, led by Mr. Colin Burrows, QPM, was to address questions regarding less-lethal weapons and associated technologies in terms of new threats, capability gaps and new technologies.*

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After completing introductions, the Chair outlined the intent of the session: to increase understanding of operational requirements and improve the collective ability to provide the necessary tools to law enforcement to meet both existing and emerging challenges. Colonel Mazzara then presented both an overview of ILEF and the results of the previous two days of workshop activities.

## Irritant Projectiles

The group discussed the challenges in describing operational needs and classification of some of the existing irritant projectile munitions. The need for “immediate” incapacitation and its definition, for example, depends upon the operational context. Additionally, some of these projectiles are intended to merely transport an irritant to the subject at a variety of distances and others are intended to combine the effects of irritants with the effects blunt impact. It was generally agreed that there was a need for a precision irritant projectile that had applications across a variety of ranges in order to simplify officer decision-making.

## Requirements and Standards

The discussion began as one focused on technologies to enhance an officer’s ability to deal with hostile aggressive individuals. It quickly surfaced that there are continued concerns regarding the proper articulation of operational requirements. The group acknowledged that, in some cases, standards for testing and development will continue to be elusive. It was agreed, nonetheless, that the gap between defining a desired situational outcome and describing the needed system effects of a particular technology needed to be addressed. This has been a universal frustration with both practitioners and manufacturers. The lack of measurable performance objectives has driven many manufacturers to emplace their own standards for devices based on their interaction with law enforcement. One manufacturer spoke, for instance, of their accuracy standard for impact munitions. He said that they considered acceptable a round that is able to repeatedly impact within a six inch circle at 15 yards. This was based on his understanding that the majority of law enforcement engagements take place within 15 feet.



**Colin Burrows, QPM**

While the generation of testing standards is certainly laudable in light of the fact that these requirements and standards have not yet been clearly defined by practitioners, this specific example points out the conundrum faced by researchers, practitioners and manufacturers alike. Although the 15 foot engagement distance may well represent the majority of current encounters, that distance is obviously driven by existing technology limitations. It is important, therefore, to continue to pursue clarity in both operational requirements and testing standards.

The recommendation from the group was that it is perhaps time to bring together official representatives of the Canadian Police Research Centre (CPRC), the Home Office Scientific Development Branch (HOSDB), and the National Institute of Justice, among others, to formally engage in resolving the requirements and standards debate. This indeed could be facilitated by ILEF by drafting a number of standards beginning with some of the basic technologies, then moving forward with those that are more complex. The operational scenarios developed prior to the workshop in Ottawa could form the foundation of the operational requirements, which could be expanded upon to meet international policing needs.

## Crowd Control in a Terrorist Event

The discussion began with an overview of the findings from the first day of workshop discussions. In particular, ILEF members presented the operational challenges of dealing with crowds in a terrorist event when the intent is to contain rather than disperse. As discussed previously, officers would expect to be dealing with motivated and emotional individuals as they would in a protest, but in this case the emotion would likely be primarily one of anxiety. Additionally, the crowd demographics would change somewhat as they would largely be victims (contaminated individuals) and not a mix of lawful protesters and anarchists. As was seen in the terrorist attack at Beslan School Number One, there is an overwhelming desire for some family members to intervene in some way in such a situation. Parents will be concerned about their children and some will just want to “walk away” from the incident. It was largely agreed that the most important tools in these situations would be ones that enabled or enhanced the ability of law enforcement to communicate effectively with the crowd to keep them informed, vigilant, and prepared. The extent to which a less-lethal weapon or technology can facilitate containment or movement of a crowd to a facility for decontamination and/or treatment, would drive its actual and perceived value.

These crowds may also differ from a traditional protest crowd in that they will be by definition nearly exclusively spontaneous in nature. Whereas many agencies can prepare and muster support for planned protest marches and demonstrations, spontaneous events present response challenges. The group recognized that while there are a number of departments across the United States and elsewhere that could field the requisite force to deal with some of these situations, the vast majority of departments have fewer than 60 officers. It would be problematic at best to expect these agencies to rapidly and successfully respond to a crowd containment requirement spontaneously in the middle of the night. In addition to communications tools and less-lethal technologies, there is a need for the sharing of tactics, guidance, and policy

between and among all law enforcement agencies in order to better address these complex situations.

It is also important to note that these situations have many liability concerns. Efforts to further the knowledge base regarding tactics and guidance, as well as developing and refining operational requirements for technologies, should always consult experienced senior practitioners and consider the policy and guidance implications.

## Counter Terrorism Operations

While many aspects of terrorism are not new, dealing with individuals willing to “die for the cause” is a new and important variable. The vast majority of police calls received regarding terrorist suspects received in the post-London bombing environment by UK police officers were not terrorists at all. This uncertainty underscores the need to find less-lethal approaches to support counter-terrorism operations. Identifying, dealing with, and disarming someone who presents himself as a suicide bomber offers a number of new challenges tactically and technologically. The volatility of many of the unstable explosive materials (e.g., TATP) and the use of electronic fuzing mechanisms drives a requirement for significant stand-off distance and precludes, perhaps, the use of certain means such as CEDs. Unfortunately, police officers first on the scene have the burden of making difficult decisions with what likely is imperfect information.

Calmatives, which were formerly rejected, now seem a potentially ideal capability. It was suggested that existing manufacturers of less-lethal technologies would perhaps be able to develop and manufacture delivery systems for such devices, leaving the development of specific agents to pharmaceutical companies. Some of the requirements for such a system would include achieving safe and consistent effects across a broad spectrum of demographics.

The group also discussed the need for vehicle stopping technologies. The difference in the military and law enforcement view of these operations was noted. The military view is to stop approaching vehicles (check points, installations, convoy security) whereas law enforcement largely sees the need to stop vehicles that are moving away (vehicle pursuit). Over the years there have been a number of technologies explored including foams, vehicle nets, electromagnetic fields, road spikes and rocket-propelled devices. Some have been fielded and are in use while other never reached a accepted status with law enforcement because the technology was not ready, overly complex, or too expensive.

## Recommendations

The session concluded with a general discussion of considerations for less-lethal in enabling, and enhancing the ability of, police officers to effectively manage these situations.

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- Bring together official representatives of the Canadian Police Research Centre (CPRC), the Home Office Scientific Development Branch (HOSDB), and the National Institute of Justice, among others, to formally engage in resolving the requirements and standards debate. Develop national/international standards for testing less-lethal technologies and explore the possibility of establishing a national testing agency in the US.
- In addition to communications tools and less-lethal technologies, there is a need for sharing of tactics, guidance, and policy on addressing these complex situations.
- Encourage manufacturers and developers to engage with senior practitioners early so that new technologies consider the policy and guidance implications in addition to the tactical requirements.
- Develop the ability to render one or a number of subjects unconscious immediately in a less-lethal way. This is the “holy grail.” Manufacturers would develop delivery systems, leaving specific agent development/refinement to pharmaceutical companies. Requirements might include achieving safe and consistent effects across a broad spectrum of demographics.

# Appendix A – Keynote Address

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REMARKS BY:

**His Excellency, Roy Fergusson**

*New Zealand Ambassador to the United States of America*

International Law Enforcement Forum Function  
New Zealand Embassy – 7 November 2006

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**NEW ZEALAND**  
Embassy WASHINGTON  
TE AKA AORERE

“Kia ora, good evening.

“It is a pleasure to welcome the International Law Enforcement Forum to the New Zealand Embassy this evening.

“This is certainly an international event with the United States, the United Kingdom, Canada, Sweden and New Zealand represented.

“The old adage, ‘a policeman’s lot is not a happy one’ is most probably as true today as it has ever been. The police officer today is faced with ever increasing violence coupled with increased scrutiny both internally, externally and through the judicial system. Dealing with a violent confrontation, the officer may have to make a decision in seconds that could affect the well being of not only the officer but also the victim and the offender. Such decisions can be analysed, commented on, praised or criticised post the event and at leisure by not only the officers own organisation, but entities such as the Police Complaints Authority, civil action groups, the media, the Courts, politicians and in some cases special Commissions of Enquiry. This is especially true where death or serious injury results.

“The officer therefore needs to ensure that he or she makes the best possible decision under the circumstances and that the most appropriate defensive tool is used. In this regard, the use by the law enforcement community of less-lethal weapons has become important, especially in the United States and Canada, as not only an effective means of controlling violent offenders, but also a means of reducing the reliance on deadly force. The use of less-lethal weapons and the consequential de-escalation of the use of force have been hugely successful in both these countries and such weapons are now considered an integral part of an officer’s equipment.

“However, the police officer in New Zealand, like our United Kingdom counterparts, does not carry a firearm as a matter of course. The introduction of less-lethal weapons has therefore been seen by some in New Zealand to be an escalation of the use of force by police rather than a de-escalation. While the introduction of pepper spray in 1999 was not without its controversy, it was generally accepted by the New Zealand public as an acceptable means of controlling violent offenders. The introduction of the TASER®, however, is meeting more opposition and there have been recent comments in New Zealand that if the

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TASER® is not acceptable to the New Zealand public, then there are some 'strong forces' that would want the Police to carry firearms.

"Interestingly enough however, the vast majority of serving police officers do not want to be armed, and would rather rely on less-lethal weapons to resolve most violent confrontations.

"Therefore, the less-lethal weapons that are provided to our law enforcement officers, be they in Sweden, the United Kingdom, Canada, the United States or New Zealand, need to be the best researched, best developed and most reliable that they possibly can. In this regard, I acknowledge and praise the work being done by the International Law Enforcement Forum (ILEF) in developing internationally agreed approaches to not only the operational requirements for less-lethal weapons but also the identification of effects and standards in the developing and testing of such weapons.

"I understand that the ILEF is unique in this regard and I wish you success in the further development of the Forum, success in your aims and objectives, and success over the remaining two days of your 2006 International Law Enforcement Forum."

# Appendix B – Agenda

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## Tuesday, 7 November 2006

- 0815-0820 Welcome & Opening Session
- 0820-0900 Overview, Administration and Introduction of Keynote
- 0900-0940 International Law Enforcement Forum Update
- 0940-1000 BREAK
- 1000-1045 Presentations: Less-Lethal Weapon (LLW) Initiatives
- Canada, *Corporal Marc Lefebvre, RCMP*
  - New Zealand, *Superintendent John Rivers, NZ Police*
  - United States, *Deputy Chief Michael Ault, LV MPD*
  - United Kingdom, *Mr. Graham Smith, HOSDB*
  - Special Presentation, *ACC Ian Arundale, ACPO*
- 1045-1100 Introduction to Workshop Breakout Sessions
- 1100-1200 Workshop Breakout Sessions
- Session 1 (Best LLW Practices: Aggressive Individual Control Techniques)
  - Session 2 (Maintaining Public Order: Crowds and Less-Lethal Weapons)
  - Session 3 (Conducted Energy Devices: Ongoing Issues)
- 1200-1300 LUNCH
- 1300-1500 Breakout Sessions 1, 2 & 3 (Continued)
- 1500-1530 BREAK (Report Preparation)
- 1530-1700 Plenary Session (Group Reports & Discussion)
- 1700-1715 OPEN TIME
- 1715-1730 Load bus for transport to the New Zealand Embassy
- 1730-1800 Bus transport to the New Zealand Embassy
- 1800-2000 Reception hosted by the New Zealand Embassy
- 2015-2045 Bus transport to Hyatt Fair Lakes

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**Wednesday, 8 November 2006**

0800-0930	Presentations
0930-0945	Introduction to Workshop Breakout Sessions
0945-1000	MORNING BREAK
1000-1200	Breakout Sessions 4, 5 & 6 (Operational Policing: Potential LLW Applications and Issues in Anti-Terrorism) <ul style="list-style-type: none"><li>■ Session 4 (Strategy, Tactics and Technology)</li><li>■ Session 5 (Community Impact and Public Order)</li><li>■ Session 6 (Policies and technologies for Individuals Conveying Terrorist Threats)</li></ul>
1200-1300	LUNCH
1300-1400	Breakout Sessions 4, 5 & 6 (Continued)
1400-1430	AFTERNOON BREAK (Report Preparation)
1430-1600	Plenary Session (Group Reports & Discussion)
1600-1700	Hosted Dinner (No Keynote Speaker)
1730-1800	Bus transport to Metro Police Headquarters
1800-2000	Metropolitan Police Department (MPD) Headquarters Visit and Tour of the Joint Operations Command Center (JOCC)
2000-2030	Bus transport to Hyatt Fair Lakes

**Thursday, 9 November 2006**

0800-0820	Manufacturer Session Introduction
0900-1000	ILEF Presentations
1000-1015	BREAK
1015-1030	Introduction of Breakout Sessions A, B & C (Colin Burrows)
1030-1200	Breakout Sessions A, B & C <ul style="list-style-type: none"><li>■ Session A – Operational Requirements: Issues &amp; Clarifications</li><li>■ Session B – Collaborative Strategies: Working Together</li><li>■ Session C – Threats, Capability Gaps and Technologies on the Horizon</li></ul>
1200-1300	LUNCH
1300-1430	Breakout Sessions A, B & C (Continued)
1430-1500	BREAK (Report Preparation)
1500-1700	Plenary Session (Group Reports, Discussion and Adjournment)

# Appendix C – Focus Questions

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## Session 1: Best LLW Practices – Aggressive Individual Control Techniques

1. What issues in respect to policy, tactics, training, arrest, and post incident management does the use of chemical irritant projectiles (FN 303, Pepperball, DIP, etc.) give rise to in single subject encounters? Are there any specific examples of good practice or problematic use?
2. How would you describe the perfect or ideal LLW for dealing with a majority of aggressive individual control scenarios?
  - a. What would be the best and worse technical/weapon considerations?
  - b. How would you describe the ideal training with such a device or devices?
  - c. What are some of the other issues surrounding the use of such weapons?
3. Discuss in the context of the ILEF Operational Scenarios, the related issues of employing LLWs against individuals in each of the applicable scenarios.
  - a. With reference to existing policies in different jurisdictions, identify examples of good policy initiatives that might be encouraged as international “best practices.”
  - b. Identify specific examples where limitations of the technology might affect the outcome.
  - c. Identify specific examples where potential for media or legal attention might impact the employment.
4. Given the currently available capability set(s), what does the group consider the appropriate capability set/kit for LLWs for anti-personnel use to be held by special weapons-type teams?
5. Are there outstanding medical issues in respect of effectiveness of intended less-lethal technology? What are they?
6. Are there specific operational ‘triggers’ or indicators for the patrol officer that would lead to the employment of certain LLWs, technologies or techniques when dealing with overly aggressive individuals?
  - a. How are those decisions made, and by whom?
  - b. Identify any experiences in policing that would lead to suggestions for better or improved designs of LLWs or technologies.
7. What issues regarding the employment of LLWs against aggressive individuals should be transmitted to manufacturers??

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## Session 2: Maintaining Public Order – Crowds and LLWs

1. To what extent is it appropriate to consider the use of impact rounds (baton rounds, AEPs, drag stabilized rounds, etc.) as (a) a crowd technology or (b) a highly accurate discriminating munition to be used against targeted individuals within a crowd including against those who may present a threat with a

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conventional firearm or other lethal weapons? What issues in relation to policy, tactics, training and post-use audit would these scenarios give rise to?

2. What issues with respect to policy, tactics, training, arrest, and post incident management do the use of chemical irritant projectiles give rise in public order situations? Are there any specific examples of good practice or problematic use?

3. Where there are lethal weapons fired (or other lethal weapons used) from within the crowd, what tactical options/responses are available to police? What LL weapon options are relevant in such situations and what issues should be considered in their deployment?

4. Are all LLW options appropriate in public order situations (e.g., CEWs) appropriate? Are we able to draw lines in our policies or is it a matter of tactical decision making by commanders? Are they properly supported in any post incident investigations?

5. Identify any differences in the decision-making and employment options for LLWs between large and small crowd situations.

6. In a large scale public order scenario:

a. What criteria should apply to the decision to employ less-lethal technology?

b. What data /information are required in respect of monitoring of the actual use of less-lethal technology?

c. To what extent should post-operational review (i.e., the technology, local procedures or techniques, training, operational directives/guidance and use) be conducted?

7. Are there specific operational 'triggers' that would lead to the decision to employ of certain weapons, technologies or techniques when dealing with crowds causing a threat to public safety?

a. Identify the strategic & tactical decisions that might be made, by whom?

b. Discuss whether training is adequate for the patrol officers on the street in employing various LLWs or techniques when dealing with such individuals. What else needs or could be done? What about training for commanders?

c. Identify any policy concerns or operational experiences that have or might result in improved design for LLWs used in public order situations.

8. How would you describe the perfect or ideal LLW for dealing with a majority of crowd control situations?

a. What would be the best and worse technical/weapon considerations?

b. How would you describe the ideal training with such a device or devices?

c. What are some of the other issues surrounding the use of such weapons?

9. What issues regarding the employment of LLWs in crowd control scenarios should be transmitted to manufacturers?

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### **Session 3: Conducted Energy Devices (CEDs) – Ongoing Issues**

1. With respect to CEDs, in one-on-one type situations, does the deployment of Taser or Taser-like technology impact the potential deployment of other available less lethal options? In other words, do officers start to discount other options more and more ? What are the risks, if any, of such an approach?
2. Are there any technological issues with respect of system effectiveness both for user and subject/target and what issues should be included within design criteria? Please identify and discuss them.
3. As a result of increased access to CEDs has there been a decline in use of impact rounds, incapacitant sprays, batons, etc.? Why? Is there an over reliance on any one LL technology?
4. Are there outstanding medical issues in respect to the effectiveness of intended CED technology? What are they?
5. On a review of the guidelines for the employment of CEDs put forth by the Police Executive Research Forum (PERF), what do you consider particularly good or particularly bad?
6. With respect to the possible consequences of use of CEDs, what are the operational and post-use medical care and accountability issues?
7. What issues regarding medical, psychological, operational or technical assessments of this technology should be transmitted to manufacturers?

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### **Session 4: Operational Policing – Potential LLW Applications and Issues in Counter-Terrorism Scenarios (Strategy, Tactics and Technology)**

1. What are the strategic and tactical considerations when deploying police officers in counter-terrorism operations and are less-lethal options relevant in these circumstances? Identify any issues which have arisen during past counter-terrorism operations with respect to LLW use and any operational experiences which are relevant to future use.
2. What are the preeminent technological concerns with regard to employing LLW systems or devices in response to a terrorist event (as part of a counter-terrorism operation or in its aftermath)?
  - a. What are the relevant policy issues to be considered?
  - b. What other factors come into play when deciding to employ such devices?
3. Are there new or emerging threats to public and/or officer safety? What are those threats?
4. Are existing technologies, tactics, and techniques adequate to address these threats? If not, where are the major gaps capabilities where less-lethal technologies might apply?
5. What issues regarding medical, psychological and/or technical effectiveness should be transmitted to manufacturers?

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**Session 5: Operational Policing – Potential LLW Applications and Issues in Counter-Terrorism Scenarios (Community Impact & Public Order)**

1. Where a counter-terrorism policing operation is being conducted, especially in areas where there is strong community identity, and/or a community from which the terrorist suspect may belong, what community impact issues should be considered with respect to the deployment of less-lethal weapons?
2. In the aftermath of a terrorist attack, or in a response-arrest-type operation, there may be public order tensions and the presence or emergence of hostile crowds that threaten public order. What issues with respect to LLW availability and usage arise in terms of:
  - a. Crowd containment or dispersal;
  - b. Considerations for officer safety versus public safety; and,
  - c. Minimizing (minimizing) the potential for escalation of both the conflict and the police response?
3. Are there new or emerging threats to public and/or officer safety? What are those threats?
4. Are existing technologies, tactics, and techniques adequate to address these threats? If not, where are the major gaps capabilities where less-lethal technologies might apply?
5. What issues regarding medical, psychological and/or technical effectiveness should be transmitted to manufacturers?

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**Session 6: Operational Policing – Potential LLW Applications and Issues in Counter-Terrorism Scenarios (Policies and technologies for Individuals Conveying terrorist threats)**

1. What policy issues exist in respect of dealing with identified individuals conveying terrorist threats (significant collateral damage, innocent bystander risks) who are presenting a specific potential threat?
2. At ranges of between 7- 40 meters, what less-lethal technologies do we have for dealing with violent individuals in a discriminating way? Is there any existing or emerging technology which is likely to replace current reliance on impact rounds in these situations? What about beyond 40 meters?
3. Are there new or emerging threats to public and/or officer safety? What are those threats?
4. Are existing technologies, tactics, and techniques adequate to address these threats? If not, where are the major gaps capabilities where less-lethal technologies might apply?
5. What issues regarding medical, psychological and/or technical effectiveness should be transmitted to manufacturers?

## Appendix D – Workshop Attendees

Asst Chief Constable Ian Arundale	West Mercia Police <b>United Kingdom</b>
Deputy Chief Mike Ault	Las Vegas Metro Police Department <b>United States</b>
Superintendent Anthony Bangham	West Mercia Constabulary <b>United Kingdom</b>
Inspector Graeme Bell	Police Service of Northern Ireland <b>United Kingdom</b>
Mr. Edward Bernart	Washington DC Metropolitan Police <b>United States</b>
Chief Superintendent David Bilson	London Metropolitan Police Service <b>United Kingdom</b>
Mr. Robert Blackburn	London Metropolitan Police Service <b>United Kingdom</b>
Dr. Viktor Bovbjerg	University of Virginia <b>United States</b>
Superintendent David Boyd	Police Service of Northern Ireland <b>United Kingdom</b>
Constable Casey Brouwer	York Regional Police <b>Canada</b>
Constable Mark Brown	York Regional Police <b>Canada</b>
Officer Tom Burns	Seattle Police Department <b>United States</b>
Mr. Colin Burrows	Law Enforcement Consultant <b>United Kingdom</b>
Phillip Bury	Canadian National Defense <b>Canada</b>
Mr. Joe Byrne	Northern Ireland Policing Board <b>United Kingdom</b>
Inspector Ty Cameron	Ottawa Police Service <b>Canada</b>
Mr. Joe Cecconi	National Institute of Justice <b>United States</b>
Sergeant Joel Deans	Calgary Police Service <b>Canada</b>
Mr. James DeCorpo	Department of Homeland Security <b>United States</b>
Chief Kim Dine	Frederick, Maryland Police <b>United States</b>
Stephane Dufour	Canadian National Defense <b>Canada</b>
Mr. Josh Ederheimer	Police Executive Research Forum <b>United States</b>
Mr. Douglas Esposito	DoD Joint NLW Directorate (ASC) <b>United States</b>

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Sergeant Fred Farris	Lenexa Kansas Police Department <b>United States</b>
Mr. Justin Felice	Police Ombudsman, Northern Ireland <b>United Kingdom</b>
Siobhan Fisher	Northern Ireland Policing Board <b>United Kingdom</b>
Sergeant Dave Flynn	Durham Regional Police <b>Canada</b>
Sergeant Rick Follert	Toronto Police Service <b>Canada</b>
Mr. Dan Fraser	Calgary Police Service <b>Canada</b>
Lieutenant David Gillespie	Montgomery County Police Department <b>United States</b>
Mr. Michael Gillespie	Home Office <b>United Kingdom</b>
Assistant Chief Thomas Graham	New York City Police Department <b>United States</b>
Commander Sid Heal	LA County Sheriff's Department <b>United States</b>
Mr. Mike Hendrickson	The Pennsylvania State University <b>United States</b>
Lieutenant Colonel Ed Hughes (USA-Ret)	The Pennsylvania State University <b>United States</b>
Major Lee James	Prince George's County Police Dept <b>United States</b>
Joel Johnston	Vancouver Police Dept & CPRC <b>Canada</b>
Dr. John Kenny	The Pennsylvania State University <b>United States</b>
Lieutenant Donald Kester	National Tactical Officer Association <b>United States</b>
Dr. John Leathers	The Pennsylvania State University <b>United States</b>
Corporal Marc Lefebvre	RCMP - Ottawa <b>Canada</b>
Lieutenant Ron Locke	Sarasota County Sheriff's Office <b>United States</b>
Mr. Forest Malone	Police Executive Research Forum <b>United States</b>
Superintendent Neville Matthews	New Zealand Police <b>New Zealand</b>
Colonel Andy Mazzara (USMC-Ret)	The Pennsylvania State University <b>United States</b>
Officer Chris Meyers	Washington State Patrol <b>United States</b>
Mr. Brian Montgomery	National Institute of Justice <b>United States</b>
Mrs. Carol Moore	Stormont House <b>United Kingdom</b>

Major James Morris	Fairfax County PD <b>United States</b>
Mr. Charlie Reynolds	Oversight Team (Patten Commission) <b>United States</b>
Constable Mike Richardson	Durham Regional Police <b>Canada</b>
Superintendent John Rivers	New Zealand Police <b>New Zealand</b>
Wes Ryan	Toronto Police Service <b>Canada</b>
Mr. Steve Shelow	Penn State University Police United States
Mr. Graham Smith	Home Office Scientific Development Br <b>United Kingdom</b>
Captain Henry (Hank) Stawinski	Prince George's County Police Dept United States
Mr. Ulf Sundberg	Swedish Defense Research Agency Sweden
Steve Thompson	Durham Regional Police <b>Canada</b>
Mike Villa	Seattle Police Department <b>United States</b>
Ms. Catherine Webster	Home Office <b>United Kingdom</b>
Sergeant Don Whitson	Special Operations/SWAT <b>United States</b>
Constable Wally Wilson	Durham Regional Police <b>Canada</b>
Rick Wyant	Washington State Patrol <b>United States</b>

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## Appendix E – Status of Previous Workshop Recommendations

Number	Title	Status
	Description	Remarks
2002-01	<b>Develop a Less-Lethal Database</b> Create a task force or working group to reach consensus on approaches to creating a coordinated retrospective and prospective database on operational uses.	<b>CLOSED</b> HOSDB database structure complete
2001-02	<b>Develop an Injury Database</b> Create a working group to develop an international approach to the recording of injury effects of less-lethal weapon usage. This would include the adoption of an agreed upon scoring system, such as that exemplified by the Abbreviated Injury Scale (AIS), to facilitate the collection of data on injuries.	<b>HOLD</b> No progress; Complex jurisdictional difference and liability issues; Reopen later.
2002-03	<b>Define Operational Needs</b> Establish a small core group that puts numbers to measurable (time, distance, and space) parameters that define operational needs.	<b>CLOSED</b> Initial effort completed. Absorbed by 2004-01.
2002-04	<b>Develop Standards for Testing and Training</b> There is a need to develop and routinely review international standards for both testing and training of less-lethal weapons. This will require resource investment from federal, state, and local law enforcement activities; law enforcement associations and organizations; less-lethal technology manufacturers and distributors, and researchers.	<b>CLOSED</b> Absorbed by 2004-04.
2002-05	<b>Conduct Independent Assessments</b> There is a continuing need for independent assessment of the tools and tactics associated with the issues of less-lethal and minimal force option concepts, technologies, and deployment. Periodic assessments conducted by non-biased experts will assist the law enforcement community in developing meaningful concepts of operations with less-lethal applications.	<b>CLOSED</b> ILEF Position Statement. No action required.

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2002-06	<p><b>Designate a National/International Less-Lethal Weapons Center for Testing and Training</b></p> <p>Establish a Center for research, development, independent testing, and training for Less-Lethal technologies. The Center would serve as a focal point for examining technologies, tactics and public policy issues related to the deployment of less-lethal weapons.</p>	<p><b>CLOSED</b></p> <p>ILEF Position Statement.</p> <p>No action required.</p>
2004-01	<p><b>Development of Agreed Operational Requirements</b></p> <p>The work on developing Operational Requirements for less-lethal weapons, and consensus across the international law enforcement community, is considered a high priority. The work initiated by the Electronic Operational Requirements Group (EORG) following ILEF 2002 should continue. The group should also address issues associated with measurements of effectiveness.</p>	<p><b>CLOSED</b></p> <p>Ongoing.</p> <p>Absorbed by 2005-10.</p>
2004-02	<p><b>Articulate Operational Requirements to Manufacturers</b></p> <p>There is a need to create a mechanism to communicate the agreed international Operational Requirements being developed by EORG to bodies such as the International Chiefs of Police and particularly with manufacturers. One option was for ILEF to harness the support of the International Association of Chiefs of Police. It would then be able to articulate and communicate the 'model' international law enforcement operational requirements to manufacturers and suppliers and for law enforcement to begin to drive technology development in this field.</p>	<p><b>CLOSED</b></p> <p>Meeting held with manufacturers and EORG document presented (2002-03) at ILEF 2005 in Ottawa.</p> <p>Absorbed by 2005-10.</p>
2004-03	<p><b>Terminology Standardization</b></p> <p>That the EORG develop standard definitions for life threatening, serious injury, and other less-lethal medical terminology.</p>	<p><b>CLOSED</b></p> <p>Absorbed by 2005-01.</p>
2004-04	<p><b>ILEF Standards</b></p> <p>That the EORG (Electronic Operational Requirements Group) develop a comprehensive set of standards for review by all ILEF members, then, publish these documents for external/peer review by practitioners, industry, and professional organizations. These standards should consider including levels of incapacitation in some form and establishing or defining levels of effectiveness, recognizing that human variability will always be a challenge.</p>	<p><b>OPEN</b></p> <p>Under review.</p> <p>Initial document presented to manufacturers at ILEF 2005 in Ottawa.</p>

2004-05	<b>Identify Desired Effects and Outcomes</b>  There is a need to formulate an operational statement of desired effects/outcomes of less-lethal weapons. There should be as much clarity as possible as to what a particular device does, or does not do. There is a need to appreciate that there are different interpretations influenced often by departmental doctrine and historical issues.	<b>OPEN</b>  Ongoing.
2004-06	<b>Describe and Provide Measures of Effectiveness</b>  There is a need to link descriptions of effectiveness with measures of effectiveness. The group was made aware of work commenced in the UK under the auspices of the Patten/ACPO Steering Group to identify effectiveness criteria for less-lethal devices. A summary of the emerging approach is provided in the Steering Groups Phase 4 Report. The integration of these descriptions with the type of measures described by Syndicate 2 (Determining Effectiveness and Injury Potential) could enable effectiveness criteria to be better articulated and measured.	<b>OPEN</b>  Ongoing.  Some NIJ funded work completed by Penn State to adapt the NATO SAS-035 MOE Framework to US law enforcement.
2004-07	<b>Incorporate Psychological Criteria into Operational Requirements</b>  There is a need to identify and understand the psychological elements of aggressive behavior in conflict situations and ensure that the development of less-lethal weapons includes design factors intended to operate on both the physical and psychological level.	<b>CLOSED</b>  Completed.
2004-08	<b>Sharing of Information &amp; Data Exchange.</b>  There is a need to encourage the sharing of information between military and law enforcement agencies and across international boundaries. The database should leverage the abundance of open source data that is available on the internet.	<b>CLOSED</b>  Ongoing.  Web site operational.  Database structure complete and online.  Absorbed by 2005-05.
2004-09	<b>Notification of Program Testing and Sharing Information on Operational Trials</b>  It is important for the professional user community to endeavor to ensure that colleagues are aware of ongoing and future conflict management tests and experimentation. This will reduce the duplicative efforts and perhaps encourage a wider acceptance of developed solutions through open and ongoing peer review.	<b>OPEN</b>  Ongoing.  Methods for using ILEF website for notification are being explored.

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2004-10	<b>Medical Data Access</b>	<b>OPEN</b>
	Conduct an investigation into, and seek support for, appropriate methods to obtain accurate and comprehensive medical data related to less-lethal effects and injuries. Consider an approach that might include a "firewall" that provides researchers only anonymous identifiers. There is some precedent for this in the area of corrections (prisons).	Ongoing. No progress.
2004-11	<b>Literature Review</b>	<b>CLOSED</b>
	That members of ILEF (perhaps as a continued EORG task) conduct a literature review to compile a comprehensive international terminology list, identify new terms (e.g., pain compliance), and address/resolve discrepancies with regard to definitions so that a common vernacular for discussing less-lethal systems could be progressed.	Completed. Absorbed by 2005-01.
2004-12	<b>Develop/Adapt Injury Model</b>	<b>OPEN</b>
	Conduct a thorough literature review to identify potential models and their characteristics which make them appropriate for less-lethal injuries. Select a number of these and validate them with actual injury data. Over time, these models could be modified to better suit less-lethal systems.	No progress. Unfunded project work.
2004-13	<b>Conflict Management</b>	<b>CLOSED</b>
	Conflict Management should be viewed holistically rather than in a manner that isolates segments independently for examination or application. Each aspect of conflict management – be it pre-event planning, negotiation, less-lethal technologies, or lethal force – should be viewed as a component that must consider the potential contribution of the other components to best address a particular situation.	ILEF Position. No action required.
2004-14	<b>Develop and promote ILEF.</b>	<b>OPEN</b>
	The Forum requires some strategic planning and funding arrangements to ensure that it continues to provide a mechanism not only for sharing information but promoting concepts, requirements and best practice in relation to less-lethal options to the international law enforcement community. One of the first steps in this process is the development of a collective vision for the Forum, crafting a concise mission statement, and outlining clear and obtainable objectives. This might be accomplished within the framework of the protected side of the ILEF website as a project.	Ongoing. Vision, Mission, and Objectives completed. Other planning actions ongoing.

2005-01	<b>Less-Lethal Technology Taxonomy.</b>	<b>OPEN</b>
	ILEF should develop and publish a classification (taxonomy) of less-lethal technologies. This should include developing definitions and terms that promote a clearer understanding of what should be considered as effects, effectiveness and issues which effect tactical outcome. Also includes terms from 2004-03 (e.g., life-threatening, serious injury).	
2005-02	<b>Testing Standards.</b>	<b>OPEN</b>
	ILEF should explore the potential for publishing a common framework document addressing standards for testing less-lethal weapons. This should include a paper setting out current 'test house' arrangements and the potential for further development. In part, extends 2004-04.	
2005-03	<b>Use of Force Reporting, Review and Investigation Standards.</b>	<b>OPEN</b>
	ILEF should identify essential criteria to be included in use-of-force (UOF) reporting and review with a view toward ultimately developing common international standards for use-of-force reporting, review and investigation. In part, extends 2004-04.	
2005-04	<b>Less-Lethal Review and Oversight Expertise.</b>	<b>OPEN</b>
	ILEF should develop, maintain and publish a listing of persons from its membership with acknowledged expertise in associated fields that are recognized and/or accredited by their profession.	Working.
2005-05	<b>Less-Lethal Information Sharing.</b>	<b>OPEN</b>
	ILEF should explore protocols for sharing human effects and incident databases with manufacturers in order to assist in improving these systems or their manufacturing processes. The database created by the HOSDB for ILEF members should be promoted as an information resource. Members should encourage their agencies and governments to participate in data exchange through this and other data resources (such as NTOA).	Website needs overhaul; Need to transition DB to Penn State host/control; Promotion efforts strategies ongoing; Funding problematic.
2005-06	<b>Development Protocol.</b>	<b>OPEN</b>
	A structured program should be developed by the ILEF Advisory Board to review with manufacturers on a collective non-commercial basis the potential for less-lethal technologies to be developed against published operational requirements.	No progress.

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2005-07	<b>Technology Assessment Template.</b> ILEF should document existing less-lethal 'capability sets' which meet the published ILEF Operational requirement.	<b>CLOSED</b> Deleted.
2005-08	<b>Decision Framework.</b> ILEF should develop a framework outlining and highlighting relevant material to assist leaders in articulating needs, assessing the feasibility, acceptability, and risk and making decisions. The RCMP Incident Management Information Model (IMIM) in Canada is a good start point to begin to achieve a common "use of force" language.	<b>OPEN</b> No progress.
2005-09	<b>Training Guidelines.</b> That ILEF explore the development and publication of a set of guidelines that describe training requirements for those who are in command of situations where less-lethal technologies may be used with an emphasis on situational or scenario-based training. That ILEF promote and encourage joint efforts and liaison between military and law enforcement as well as local, regional and national agencies toward the development and employment of protocols and training.	<b>OPEN</b> No progress.
2005-10	<b>Operational Requirements.</b> That ILEF invite response from manufacturers to the Less-Lethal Operational Requirements Document which has now been published. This also advances recommendations on operational needs clarification (2002-03) and developing/articulating operational requirements (2004-01/02).	<b>OPEN</b> Ongoing.
2005-11	<b>Technology Development Framework.</b> ILEF should lead an effort to develop a general framework for the development of less-lethal weapons that includes the responsibilities of the user, the developer, the manufacturer, a peer review process and government-based oversight organization.	<b>OPEN</b> No progress.



