

# THE INSTITUTE FOR NON-LETHAL DEFENSE TECHNOLOGIES

The roles of the U.S. military and the nature of the threats to our forces have significantly changed over the past decade as illustrated by U.S. interventions in Panama, Somalia, Haiti, and Bosnia. These engagements, unlike those anticipated during the Cold War era, were against small units armed with inferior, yet effective, weapons and that often used civilians as a shield. Also, these interventions were dramatized by the U.S. and international news media and reported worldwide in near real time.

In this environment, U.S. military operations are severely restricted when options are reduced to lethal force or withdrawal. A humanitarian alternative to lethal force is urgently needed by the U.S. military that is effective for protecting U.S. interests, personnel, and property. Moreover, the need for non-lethal augmentation of conventional military force is expected to increase in the future.

There is a similar sense of urgency within the civilian law enforcement community. Non-lethal/less-lethal technologies and tactics expand the number of minimal force options available to law enforcement when the use of deadly force is considered inappropriate. They provide flexibility by allowing police to apply appropriate force with reduced risk of serious injury or fatalities, but in such a manner as to provide protection of the public and effect compliance.

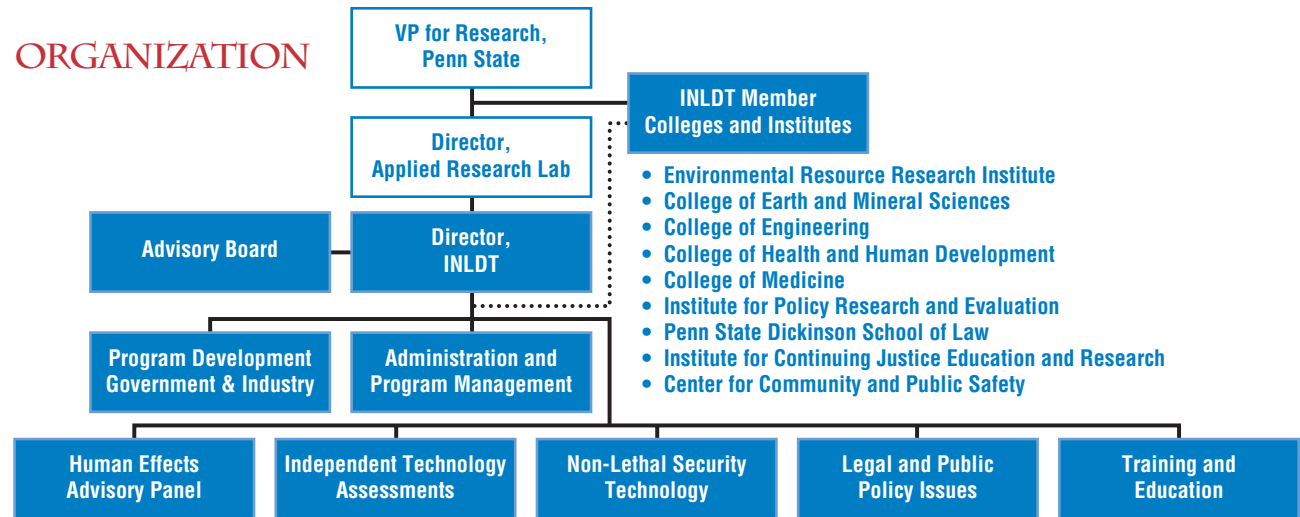
Because law enforcement can employ minimal force options at a lower threshold of danger, police can respond to an evolving public security or safety threat more rapidly. This allows local and national police organizations to retain the initiative and reduce both their own and the public's vulnerability. Thus, a robust capability in this area will assist in bringing into balance the conflicting requirements of public order, public protection, and the safety of the police. It will enhance the utility and relevance of appropriate force as a legitimate policy option in a potentially complex and chaotic social environment.

Given the recent increase in global terrorism, the need exists for effective and safe techniques that can deal with belligerent crowds and individuals who exploit innocent bystanders for concealment or groups that seize and hold hostages. Safe and effective methods to temporarily disable hostage takers could negate the necessity of lethal force in some situations.

The growing level of violence associated with global urbanization and the war on terror provides a more immediate sense of urgency for identifying broadly accepted (international) approaches for minimal force options.

The aim of the INLDT is to provide a scientific basis for understanding the various options, technologies, and tactics being contemplated. It is 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 on the basis of existing facts from scientific and social literature.

## ORGANIZATION

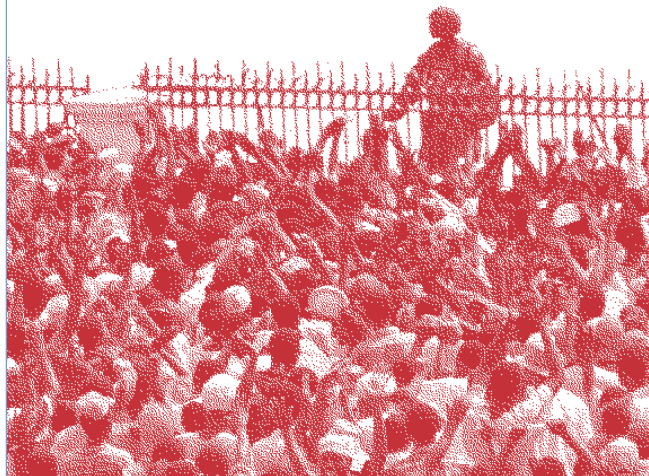


## CHARTER

The Institute for Non-Lethal Defense Technologies (INLDT) is dedicated to the development of a knowledge base for the responsible employment emerging technologies for military and law enforcement applications

## MISSION

The mission of the INLDT is to promote, coordinate, and conduct interdisciplinary research and development of non-lethal concepts and technologies for conflict resolution and security. The institute supports Department of Defense, Department of Justice, and Department of Homeland Security efforts to examine technologies, tactics, and public policies regarding the responsible application of these minimal force options.



## SCOPE OF ACTIVITIES

- Concept Formulation
- Technology Development and Evaluation
- Performance Effectiveness and Measures of Lethality
- Human Effects Assessment and Medical Implications
- Public Policy and Employment Guidance
- Non-Lethal Application of Directed Energy
- Integrated Site Security Planning
- Countermeasures
- Safety Standards
- Training Programs

## TECHNICAL CAPABILITIES

- Advanced Materials and Corrosives
- Human Effects Modeling
- Nano-Technologies
- Laser Applications and Effects
- RF Propagation and Antenna Design
- Sensors and Sensor Networks
- Maritime Tagging
- Wireless Mobile Communications
- UUV / UGV / UAV Intelligent Control
- Visualization and Virtual Environment
- Chemical and Biographical Sensor Fusion
- Computational Mechanics
- Nuclear Detection Systems
- Acoustics

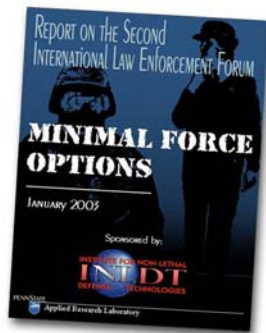
## ACCOMPLISHMENTS

### Human Effects Advisory Panels and Independent Assessments:

- Portable Vehicle Arresting Barrier
- Modular Crowd Control Munition
- Blunt Impact Non-Lethal Weapons (66mm, 40mm, Sticky Shocker)
- Directed Energy System
- Injury Models and Roadmap
- Crowd Behavior and Control

### Outreach, Research, and Technical Support:

- Advanced Tactical Laser (ATL) Technical Support
- Tensioned Wire Sensor Fence (TWSF)
- Blood Brain Barrier Injury Research
- An Experimental Basis for Human Effects Models
- Acoustic Sensor Projectile Development
- Chem-Bio Multi Sensor Analyzer Detector
- Mobile Electronic Intelligence
- Non-Lethal Weapons Instructor Course Review
- Attribute-Based Evaluation (ABE) of Less-Than-Lethal Munitions
- Need and Technologies for First Responders
- International Law Enforcement Forums on Minimal Force Options
- Concept of Operations Development
- Web Site Development



## Institute for Non-Lethal Defense Technologies

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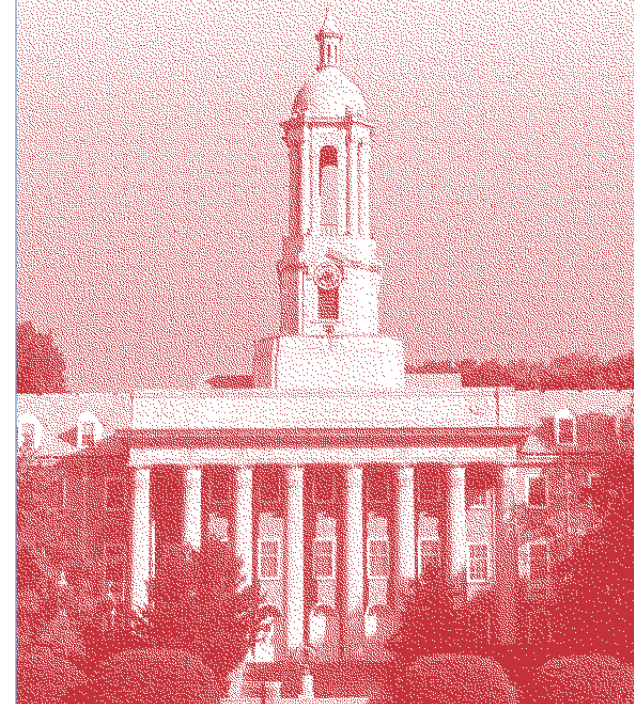
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RESEARCH, SERVICE,  
AND EDUCATION  
FOR  
MINIMAL FORCE OPTIONS



THE APPLIED RESEARCH LABORATORY  
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