NONLETHALITY:

A GLOBAL STRATEGY

NONLETHALITY: A Global Strategy

THE CONCEPT:

The United States currently has the technological capability to pursue our national security goals, at home and abroad, through a policy of Nonlethality, without weakening our powerful deterrence capability in high technology weapons. We should proclaim this new policy, strategy, and operational capability now, before some other nation preempts us and gains the invaluable media and diplomatic advantage of being the first to delineate this life-conserving new strategic philosophy and operational capability.

THE STRATEGY:

Nonlethality is a revolutionary new strategy of deterring and containing aggression with nonlethal and highly constrained force that provides utility across the continuum of conflict. Nonlethality is based in the realization that, to be useable, force must be geopolitically acceptable and tailored to emerging threats. Nonlethal force projection will allow effective action in many situations which pose threats to the U.S. national interests but where no consensus can be developed for massive conventional force projection—situations in which the U.S. is currently unable to act effectively, or, in some cases, to act at all.

THE BENEFITS:

The development of nonlethal weapons designed to stop aggression while conserving life, resources, and the environment can provide the cornerstone of a new strategic doctrine of containing barbarism or conflict, and do so in a fiscally responsible manner. The mature technologies in our defense-industrial base, paid for during the Cold War, can become our real Peace Dividend if they are used to provide nonlethal systems suited for domestic as well as international use, and for peacemaking and peacekeeping as well as in support of diplomacy and conventional force projection. The development and production of nonlethal weapons can help conserve our defense base, provide new jobs in high technology, a new export market, and stimulate research and development. In wartime and below the threshold of war, nonlethal weapons can act as force

multipliers and create new options for both political leaders and field commanders.

Nonlethality as an operational strategy and realized capability will enable the U.S. to take the lead in managing conflict at all levels, at home as well as abroad, thereby providing a real and necessary benefit to U.S. citizens. Based on the real state of the world today, nonlethality will enable the U.S. to maintain its position as world leader while enhancing our diplomatic efforts, creating a new deterrent to violence and a new peacemaking capability, and reinforcing our ability to project conventional American power, when necessary, worldwide.

A NONLETHAL REALM OF RESPONSE AND DETERRENCE:

Nonlethality augments our powerful high-technology deterrence capability by adding a new realm of response, a spectrum of narrowly constrained force projection options that can facilitate timely action and comprise a nonlethal deterrence through the creation and maintenance of no-fire or fire-free zones. These components, taken together, will demonstrate that the U.S. is capable of reacting appropriately and effectively to aggression below the threshold of war. Since nonlethality will provide weapons and tactics for responding to conflict with the minimum force necessary to overwhelm, disarm, and defeat an adversary, nonlethality provides a new realm of response to regional and low intensity conflict. Conventional responses to civil wars, ethnic and religious violence, adventurism, insurgency, terrorism, narco-trafficking, and domestic crime have proved ineffective and inadequate. The destabilized post-Cold War world provides new challenges below the war threshold that can be countered decisively only highly constrained and effective operations, tactics, and weapons. When we try to meet such threats with conventional massive force, we kill innocents, destroy property and assets that we must later restore, lose the media war, and create new generations of enemies.

ANNOUNCING A NATIONAL NONLETHALITY POLICY:

Without relinquishing our massive force capability or damaging our national strength, the United States can now announce and demonstrate to the world a new national policy of Nonlethality. We can support that announcement with off-the-shelf technology that works. By so doing, we can take the moral high ground internationally and manage global change so that our far flung interests are protected.

By identifying and requiring a new category of nonlethal weapons, tactics, and strategic planning, we can reshape our military capability to meet the proliferating threats we will face in a multipolar world, where American interests are globalized and American presence widespread. U.S. forces are now in twice as many countries as during the Cold War years, facing new missions without new training, weapons, or technology supports. We can increase the effectiveness of our down-sized armed forces by giving decision-makers new options that they can develop consensus to use, and by giving commanders additional options appropriate to the situations in which they find themselves. The U.S. can share these nonlethal technologies with allies and strengthen the ability of civilized nations to respond to all kinds of violent aggression because they will have operational and tactical capabilities that conserve all life and property — even the lives of perpetrators. Thus we will erode anti-Americanism, facilitate a global business climate, and undermine the martyr incentive that helps fuel religious and ideological fanaticism.

FACING THE PROLIFERATED BATTLEFIELD NONLETHALLY:

As high-tech weaponry and expertise spread among the developing nations, we are entering into a dangerous arena in which our forces may face lethal weapons as sophisticated as our own. On the proliferated battlefield, our casualty-intolerant society often faces casualty-tolerant adversaries. Such adversaries will often be using lethal weapons when the U.S. enters the fray with nonlethal weapons capable of defeating those lethal weapons. The lower the technology level of an aggressor, the more likely that aggressor will be to resort to lethal force. The higher the technology level of a force, the more vulnerable that force is to nonlethal attack. Therefore, the U.S. must assume that its adversaries will be using lethal force that may be of a low-technology nature that is not easily countered. High-technology countermeasures and antifratricide must be developed concurrently for new nonlethal weapons systems.

TRIPLE-THREAT TECHNOLOGIES (T3):

In cultures abroad and some subcultures at home, nonlethal weapons may initially provide an incentive to an adversary to attack without fear of lethal response. Consequently, nonlethal force must be proved effective before it can provide a deterrent to violence. The concept of "Triple Threat Technologies" — technologies which provide precision nonlethal, low-lethal, and highly lethal

results from the same weapons system — have high utility in introducing the concept of nonlethal force to both users and potential adversaries. By using T3 technologies in initial training, planning, and operational exercises, it will be possible to develop force integration and training plans, new methodologies, and to understand the value and limitations of new options. To avoid inciting a lethally-armed force to attack a U.S. force perceived to be armed only with nonlethal weapons, there should never be a "nonlethal" unit fielded by the U.S., nor should special training and weapons make any part of a U.S. force a preferred target for its adversary. Rather, nonlethal weapons must be capable of precise nonlethal-to-lethal responses, so the adversary will not know what response to expect, and so U.S. field commanders can have a full panoply of responses available.

DEVELOPING NONLETHAL WEAPONS FOR THE 21ST CENTURY:

The U.S. already possesses the concepts for the development of such T3 (nonlethal to precision-lethal) weapons systems. We currently have, scattered throughout our arsenal, technologies capable of neutralizing lethal force without massive damage to life or property. We now have in place development programs that can quickly produce others. Nonlethality, as a technology development path, is not dependent on any new breakthroughs or untested theories. Its strength lies in its ability to gather, emphasize, and utilize nonlethal weapons we already have, and to create new ones, using technologies for which research is either done or already well under way.

To take advantage of the technological peace dividend available from developing nonlethal systems, a program of Lethal to Nonlethal Conversion should be undertaken by the U.S., as well as the establishment of a single programmatic and coordinating capability that can service both defense and law enforcement end users. Utilizing monies already allocated for Crime Control, Defense Conversion, and Advanced Technology military systems in a concerted and coordinated development effort, nonlethal systems can be in the hands of users within five years and in some cases sooner.

THE TACTICS:

If directed, the U.S. has the capability to produce and field equipment in the near term that can: blind optical sensors, targeting devices, and temporarily dazzle human operators; identify, target and respond to snipers, drive-by shooters, and terrorists within seconds of hostile fire with a

range of precision nonlethal-to-lethal projectiles; create no-fire or fire-free zones; shoot down incoming artillery shells; break mortars, tanks, and heavy artillery without massive explosions; nonlethally destroy or incapacitate electronics, including electronic ignitions, detonators, communications, and radars; disperse crowds using transient-effect generators; identify and locate terrorists, criminals, or drug production sites from overhead; identify adversaries, hostages, or abductees in buildings, under ground, or under cover; ignite ammunition dumps; calm people or put them to sleep; cause vehicles to stop rolling or keep planes from flying; change the chemical composition of fuels and the tensile strength of metals; stun or incapacitate perpetrators; deny access to areas without risking or taking lives unnecessarily.

Nonlethal technologies can help us regulate the amount of force employed against a target, even if that target is embedded in an innocent population. Nonlethal kinetic, chemical, and electro-magnetic technologies can give our forces the ability to respond where now they must either stand by helplessly or apply force inappropriate to the threat. For our foreign base commanders, our embassy guards, our seagoing forces, our war on drugs, our attempts to counter terrorism and to forestall nuclear terrorism, our need to deal benignly with ethnic violence, even our law-enforcement officers faced with domestic crime -- for all these and more, nonlethality will become a preferred response if such a spectrum of response is available.

Nonlethal technologies include:

Lasers: Resembling conventional rifles, low-energy laser rifles with power packs can disable optical and infrared systems used for target-acquisition, tracking, night-vision, and range-finding. Operators using vision enhancement systems being lased or eyes struck directly by lasers will be damaged according to the power of the laser source and the degree of intensification afforded by those enhancement systems.

Isotropic Radiators: Where precision targeting is impossible, omni directional laser-bright "rounds" can be fired interchangeably with kinetic rounds from modified conventional weapons, such as grenade launchers, to dazzle people or optics. These explosively driven munitions are effective against aircraft, in the dark, or when people will look toward the light.

Acoustics: For crowd and riot control, or psychological operations, infra sound (very low frequency sound) generators could be tuned to incapacitate humans, causing disorientation, nausea, vomiting,

or bowel spasms. The effect ceases as soon as the generator is turned off, with no lingering physical or environmental damage. More sophisticated sound systems can be used to target an individual in a crowd and deliver an acoustic "punch," or to communicate without using a receiver. VLF waves can be used to map and deny underground installations. "Fright wave" generators and "shakers" capable of creating controlled earth-shocks can drive adversaries from buildings, bunkers, or tunnels, and deny use of facilities.

Non-Nuclear Electromagnetic Pulse (EMP): Developmental beam generators producing one gigawatt of power or more could be loaded on trucks or trains to explode ammunition dumps within line of sight or to destroy or paralyze unprotected, in-use electronic systems, or systems with antennas, or systems connected to batteries. Vulnerable systems include all engines with electronic ignitions, gasoline pumps, radars, communications, navigational systems, and unshielded electronic triggers of explosive and nuclear devices.

High Power Microwave (HPM): A national program exists for the development of HPM systems designed to disrupt electronics. In the low-intensity conflict environment, a truck or van capable of firing repetitive HPM pulses can be driven to the scene, or a small robotic vehicle can be remotely driven to the target and blown up, delivering one explosive HPM pulse.

Liquid Metal Embrittlement (LME): LME, also called chemical metal embrittlement (CME), agents work by changing the molecular structure of base metals or alloys to which they are applied. LMEs are clear and have little or no perceptible residue, whether sprayed on or applied with felt-type markers. Used selectively on critical metal structures—aircraft, ship or truck components, elevators, metal treads, bridge supports—LMEs can cause significant disruption and psychological distress if environmental problems associated with their residuals can be effectively addressed and minimized.

Single Station Location (SSL): SSL is a field-ready, high-frequency direction finding technique that requires no triangulation, just a single site to obtain a target fix. Compact and portable, with a low probability of intercept, SSL provides increased locating accuracy, on the ground, for our forces.

High Power Deception/Jamming: For low-intensity conflict or drug interdiction, denial of high frequency (HF) communications paths can be of critical importance, because narco-terrorists and insurgents do not have satellite communications and use HF communications almost exclusively. High power jamming can be used with imitative communication deception, allowing us to control

the target's information.

Voice Recognition Technology: In the same way that fingerprinting identifies an individual beyond doubt, voice printing can be used to identify a person by voice pattern. Voice imprint technology can then be combined with communications intercepts and direction finding equipment to identify and locate narcotics traffickers, terrorists, or fugitives communicating on land, at sea, or in the air.

LIDAR: LIDAR -- light detection and ranging -- can be used for plume identification and sensor blinding. LIDAR systems could identify the plume of covert drug manufacture or other illicit processes, pinpointing manufacturing sites. LIDAR sensor blinding systems provide long-range dazzling of sensors and sensor operators.

Space-Based Denial: Tactical satellites employing high-power microwave, LIDAR or non-nuclear EMP could covertly destroy or disable unshielded electronic systems -- including above-ground launch facilities or weapons-making systems of rogue states developing nuclear or chemical capability.

Space-based Detection: Current space-based detection systems can be augmented with new infrared sensors and LIDAR to provide day/night, all-weather detection from space. Space-based detection can assist our peacekeeping effort worldwide through improved reconnaissance and intelligence gathering capabilities.

Calmative Agents: When we must incapacitate people as well as equipment, calmatives or sleep agents mixed with DMSO (which delivers chemicals through the skin into the bloodstream) can curb violence and limit casualties wherever full NBC gear is not worn. In anti-terrorist actions, counterinsurgency, ethnic violence, riot control, or even in select hostage situations, calmative agents offer an underrated tactic whose effectiveness depends only on modern precision and area delivery systems.

Anti-traction technology: Anti-traction makes surfaces slippery. Teflon-type, environmentally neutral lubricants can be spread or sprayed on railroad tracks, grades, ramps, runways, even stairs and equipment, denying their use for a substantial period, because such lubricants are costly and time-consuming to remove.

Polymer agents: Polymers in burst munitions (chaff) will foul air-breathing engines, or, mixed with colored smoke known to contain such agents, dissuade pilots from flying into the colored clouds, denying whole areas. Polymer adhesives, delivered by air or selectively, on the ground, can "glue" equipment in place and keep it from operating.

Combustion alteration: Internal combustion engines can be disrupted through special application of chemical agents. These compounds will temporarily contaminate fuel or change its viscosity to degrade engine function. Gases delivered by small mines can choke engines and cause them to stop when mines are crushed under tires or treads.

Entanglements: Entanglements foul propellers or rotor blades, just as a loose rope in the water might do. Entanglements can be effective, with proper delivery systems, on airborne targets as well as naval vessels. Stinging nets and sticky nets can envelop perpetrators. "Shrouds" and "Shrink wrap" can envelop cars or tanks. Sticky airbag/net combinations can provide protection for taxi drivers, ATMs, convenience stores, and other high-risk targets domestically, as well as helping to secure embassies.

Stun technology: The flash/bang grenade, the "taser," hand-held electric stunners, and the "dazzler" battery- operated 20,000 candlepower flashlight are currently available examples of stun technology. Especially for domestic use, in situations where disarming without harm is crucial, we require further refinements of stun technology.

Firefinders: Technology to detect hostile fire, target its source, and provide the option of responding within seconds nonlethally or with precision lethality has been demonstrated. For police, Special Forces, peacekeepers, or counterterrorists, the ability to determine the exact location of a sniper's weapon, the caliber of the weapon, and the precise trajectory from which to calculate and target return fire in real time is a watershed technological development. Such systems, augmented by real-time response with a range of precision nonlethal to lethal projectiles (below) can enforce “no-fire” or “fire-free” zones.

Precision Projectiles: Precision Projectiles offer the first realizable T3 weapons systems. Precision guided projectiles carrying minimal force, shaped charges or nonlethal loads can break enemy hardware such as artillery, tank barrels, or incapacitate critical parts of weapons systems or troops, all delivered via a single fire control system. Precision projectiles to block exhaust tubes or break engine blocks to stop engines can provide new means to stop fleeing vehicles without creating

accidents. Precision projectiles launched by unmanned vehicles could provide numerous peacekeeping options while U.S. troops remain at safe distances from warring factions.

Foams: Sticky foams and aqueous foams provide new options to immobilize intruders through various delivery systems for protection of nuclear sites, embassies, sports arenas, ATMs, and other targets.

Nonlethal Bullets: A wide variety of nonlethal bullet designs are in prototype development, including rubber circlets, "bean bag" bullets, liquid bullets, smurf grenade/bullets, and tranquilizing fleshettes.

Perpetrator and Victim ID Systems: Several systems exist which can use informative features to digitally map special characteristics of humans, which cannot be changed by disguise, cosmetic surgery, or age. Computers containing this information can scan for individuals at airports, toll booths, ATMs, banks, and wherever security measures are in effect.

Information Warfare Systems: Taking control of an aggressor's communications capabilities enables the insertion of alternate information, or the replacement of an adversary's broadcasts with seemingly identical program material which contains information U.S. forces wish the adversary to have, but which masquerades as the adversary's own communications. Information warfare technologies provide the capability to interdict, manipulate electronic banking systems and to introduce viruses into computer networks.

SUMMARY:

We can better serve our national interests at home and abroad by projecting power without indiscriminately taking lives or destroying property. In keeping with our Constitution and the existing framework of international security arrangements, the United States can and should announce and pursue nonlethal deterrence. By implementing Nonlethality, we can support our diplomatic initiatives, ensure human rights, promote democratic values, and provide for the common defense, while preserving freedom and protecting American interests in a multipolar world.

We should take this bold step now, confident that we can usher in this new era of strategic thought. While retaining our powerful lethal deterrence capability, we can add this second, new dimension to America's spectrum of response. America's vision of Nonlethality will stimulate,

nurture, and protect economic growth worldwide as the family of nations transits to a free and open global economic system. It will encourage all civilized nations shape the geopolitics of the future and guide the growth of embryonic nation-states toward democratization. Its implementation will underscore our national character and our determination to lead the world away from war- fighting and toward peacekeeping in the coming century.