



National Institute of Justice

S o l i c i t a t i o n

Jeremy Travis, Director

August 1999

NIJ Science and Technology Solicitation

APPLICATION DEADLINE: October 7, 1999

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SL000374

From the Director

Dear Colleague:

I am pleased to present the Fiscal Year 2000 open solicitation for technology-related proposals entitled *NIJ Science and Technology Solicitation*. This year, NIJ will establish two open solicitations, one for technology and one for social science proposals. The solicitation for social science proposals will ask for proposals to be submitted several months after this solicitation. It is, therefore, very important that proposers consider carefully whether the major focus of their proposals is technology research and development or criminology or social science.

In this solicitation, NIJ is seeking proposals that will develop technology tools to help law enforcement and corrections personnel perform their missions. This is an invitation to researchers, practitioners, and technologists to explore innovative technologies and techniques to help accomplish the national goal of a more effective criminal justice system. In this endeavor, creativity counts.

We give you free rein to experiment with practical approaches that will rethink the conventional wisdom and offer alternative means for solving recurring problems. Finally, we invite you to seek collaboration with other organizations and disciplines in testing ideas and approaches that more effectively address law enforcement and corrections challenges.

To supplement information in this solicitation on themes and topics addressed by NIJ research and development, please consult *Building Knowledge About Crime and Justice: The 1999 Research Prospectus of the National Institute of Justice*. Additional information is available at NIJ's Web site (<http://www.ojp.usdoj.gov/nij>).

This call for innovative research suggests specific avenues that could be explored. We ask that you stretch the limits of your imagination to define and confront the challenges ahead. Such efforts will expand our knowledge of crime and justice and aid in formulating sound strategies to lead us into the 21st century.

Jeremy Travis
Director
National Institute of Justice

NIJ Science and Technology Solicitation

I. Introduction

The National Institute of Justice (NIJ) is the research and development arm of the U.S. Department of Justice. Created by Congress in 1968, the Institute is charged with investing public funds to develop knowledge that will reduce crime, enhance public safety, and improve the administration of justice. Under its enabling legislation, NIJ is authorized to assist State and local justice systems in the following ways:

- o By conducting and sponsoring basic and applied research into the causes, prevention, and detection of crime.
- o By sponsoring evaluations of major Federal initiatives concerning crime and justice.
- o By supporting research, demonstrations, and validations to develop new approaches, techniques, systems, and equipment to improve law enforcement and the administration of justice.
- o By developing, validating, and evaluating new technologies to deter crime and enhance criminal justice operations.
- o By making recommendations to Federal, State, and local governments.
- o By conducting conferences and workshops for criminal justice policymakers and professionals.
- o By collecting and disseminating both domestic and international criminal justice information obtained by the Institute or other Federal agencies.

NIJ's portfolio covers a diverse and dynamic array of research and development topics. Over the course of each year, the Institute's research program evolves as a result of consultations with

researchers, technologists and practitioners, Federal, State and local policymakers, and partnerships with other public and private organizations. The *1998 NIJ Research Portfolio*, which lists ongoing NIJ research and development through June 1998 with project descriptions, is available. The Institute encourages prospective applicants to consult that publication as well as *Building Knowledge About Crime and Justice: The 1999 Research Prospectus of the National Institute of Justice* (NCJ 172883), as guides to NIJ's approach to criminal justice research and development. (See section V of this solicitation for instructions on obtaining these and related documents.)

II. General

For fiscal year 2000, NIJ will accept proposals for technology-related awards under this solicitation, and several months later it will accept behavioral and social science-related awards under a separate solicitation. Therefore, it is important that proposers determine whether their proposals should be reviewed by a peer review panel composed of technologists and criminal justice practitioners **under this solicitation** or by a peer review panel composed of social scientists and criminal justice practitioners under the social science open solicitation.

This solicitation is open to a wide variety of proposals in order to achieve a balanced portfolio of product development, implementation, and evaluation projects. This solicitation focuses on near-term (one to three years) development and implementation projects.

To assist in obtaining information that may be helpful in submitting a proposal, you are encouraged to use the resources and expertise of the NIJ National Law Enforcement and Corrections Technology Center (NLECTC) located in Rockville, Maryland; and the regional

NLECTCs located in Rome, New York; Charleston, South Carolina; Denver, Colorado; El Segundo, California; and the Border Research and Technology Center (BRTC) located in San Diego, California. More information about the NIJ National Law Enforcement and Corrections Technology Center system is available on the Internet at <<http://www.nlectc.org>>.

You should keep in mind that cost considerations of resulting technology development products are a major concern. Most law enforcement and corrections agencies have limited financial resources to apply to the evaluation, development, implementation, or purchase of technology. This is especially true for State and local agencies. These and related factors all influence the timeliness and the degree to which new technologies are accepted by administrators. Please consider the questions below when determining the usefulness of your proposal. In your proposal, you should incorporate information that addresses the general themes posed by these questions; however, it is not necessary to answer explicitly each question.

- How important is the new technology to law enforcement and corrections officers?
- What will be its impact on policing or correctional organizational structure and personnel requirements?
- How many units will be needed?
- What are the hidden costs? For example, new computers may require additional data input personnel, or highly specialized and complex equipment may incur expensive maintenance costs.
- What, if any, are the net savings in labor or other costs?
- How much training is required to use and maintain the technology?
- How will the courts view the technology—in terms of liability or interference with personal freedom? What constitutional or other legal issues may arise from utilization of the technology?

- What is the breakdown of tasks with resource expenditures for each task? (A task breakdown is sometimes very helpful for NIJ managers, who can better understand how the proposer plans to accomplish the work.)

Within the following focus areas, there are specific topics that could meet critical law enforcement and corrections needs. These topics are not considered to be exclusive; you may submit proposals in other areas. Listed below are general descriptions of some of the kinds of programs and projects included in NIJ's current portfolio and that may also be relevant to this general solicitation.

III. Portfolio

This solicitation is not intended to fund the purchase of existing commercial systems.
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(a) Simulation and Training. The operational duties and tasks of law enforcement and corrections personnel are becoming increasingly complex, diverse, situation-dependent, and highly interactive. Traditional classroom training techniques to address this responsibility can be limited because they lack the realism and interpersonal tension that can exist in resolving conflict and violence. While live exercises and role playing can provide more of the desired realism, they are expensive, manpower intensive, and sometimes not feasible. New methods of training are required to address areas such as (1) use of force or judgment training; (2) officer safety; (3) event modeling and simulation; (4) policy and procedures training; (5) interpersonal skill development; and (6) supervisor, management, and resource allocation training. Please consider training technologies, such as computer-based training, interactive/multi-media, video-based, distributed, and virtual reality.

Simulation and statistical modeling technology can also be used to enhance operational

capability and capacity. Technology can improve (1) geo-coded information that may provide a basis for new safety and violence reduction strategies; (2) statistical modeling, neural network, or expert-based methods to classify students needing special supervision; (3) general crime prevention practices; and (4) other areas that will improve strategies and procedures to more efficiently and effectively use law enforcement, courts, or corrections resources. The simulation and modeling technologies should be inexpensive to procure, easy to learn, and sufficiently flexible to adapt to specific needs of individual law enforcement and corrections agencies.

(b) Communication and Information Technology. NIJ solicits proposals that examine information technology needs and methods for database information sharing for State and local organizations or to improve analysis of public safety-related data in individual law enforcement and corrections agencies and to plan new approaches to reduce violence and create a safer environment. NIJ is looking for technology to enhance communication such as interagency communications interoperability, continuous communication coverage in urban or rural environments, secure communications, video/data capture, transmission (including video conferencing), or compression (including noise and false alarm reduction). NIJ also solicits proposals for information resources security, improved search and retrieval methods, and electronic imaging techniques.

NIJ solicits proposals that would (1) provide technical, organizational, and operational systems permitting Federal, State, or local law enforcement and corrections agencies to share information; (2) describe the common needs and new or modified requirements for an information system; (3) describe which of the current information systems could or should be linked together, and how this should be accomplished; (4) describe any new or novel applications of information technology and the cost effectiveness of any proposed shared information system; (5) provide a plan for implementation of

any proposed information systems or technologies; and (6) improve data analysis techniques. NIJ also solicits proposals for biometric applications that would enhance or augment new or improved communication and information sharing technology.

Please note that NIJ does not intend to fund “stove-piped” design solutions but instead requires that all proposed designs consider ways to accomplish communications interoperability, which is defined as the ability for two or more agencies to exchange information (voice, data, or imagery) across jurisdictional boundaries.

(c) Officer Protection and Crime Prevention. Techniques, materials, and methods are needed to improve the protective and safety equipment used by law enforcement and corrections officials. Your applications addressing officer protection should emphasize improving the degree of protection, comfort and fit of body-worn equipment, ease of use, and cost of protection equipment. Your applications in this area should describe the development of systems that are easy to use, require low power (primarily for man-portable or unattended applications), and are inexpensive to purchase and operate. Some examples of this type of technology are (1) sensors and monitors (perimeter/physical security), (2) explosives/drug detection, and (3) concealed weapons detection.

The development, adaptation of existing systems, appropriate deployment, and analysis of closed circuit television (CCTV) is an area that could benefit public safety. Image processing, enhancement and analysis may also be useful. For some types of safety threats (e.g. telephoned bomb scares), speaker identification might have some value. However, it is incumbent on the applicant to articulate the expected benefits and cost trade-offs with existing approaches for dealing with the problems that the technology seeks to address.

(d) Less-Than-Lethal (LTL). NIJ seeks technologies that provide new or significantly improved options to conventional use-of-force

methods. Scenarios where LTL technologies, devices, or techniques might be appropriately employed include, but are not limited to, confrontation with subjects who assault officers or refuse to comply with lawful orders and who may be armed with a weapon and individuals who become violent or uncooperative. You must consider all aspects of the safety of proposed LTL devices from the effect produced on the subject to the effect on bystanders and on persons employing the LTL device. Any disabling effect on an offender must be of a short duration and completely reversible. You must clearly articulate the expected reduction in the incidence of injury to officers and combative suspects. You must make cogent arguments that the proposed technique or device is quantitatively more effective or safer than that currently used to achieve the same objective. Included in less-than-lethal technology is car and vehicle stopping technology—developing and improving methods police may employ to safely stop fleeing vehicles, including use of stationary systems for check points, police vehicle-based systems, and hand-held portable devices.

NIJ also seeks technology for use by law enforcement agencies in performing vehicular pursuit management. Several broad areas of technologies are sought: physical systems and devices that will safely and effectively immobilize motor vehicles; information technologies that can be employed in the management of pursuits in progress or to enhance law enforcement officers' preparedness in responding to pursuit situations; and technologies that warn the general public of imminent hazards associated with pursuits in progress. Proposals that address vehicle-immobilizing systems and devices must provide sufficient description of the physical operating principles of the system or device to permit an assessment of its expected effectiveness and safety.

(e) Counterterrorism. NIJ, in concert with the Department of Defense, is a leader in the development of concealed weapon detection technology. NIJ solicits new and innovative

concealed weapons detection technology for development and demonstration. Current concealed weapons technology focuses on passive millimeter wave imaging, low intensity electromagnetic technology, long wave infrared receivers, radar and ultrasound technology, passive magnetic detection technology, and low-frequency magnetic imaging technology. NIJ solicits proposals for new and innovative concealed weapons and explosives detection technology that is cheaper, easier to use, and portable.

(f) Investigative and Forensic Science. This solicitation seeks proposals for the development of scientific bases for forensic physical evidence obtained from fingerprints and firearms; expansion of trace evidence and questioned document examination techniques; and employment of advanced DNA/serology, pathology, entomology, odontology, and toxicology methods.

Specific focus in the area of enhanced DNA testing technology includes development of affordable, rapid, and portable DNA testing technologies designed to improve the ability of State and local law enforcement agencies to support the investigation and adjudication of violent crime.

All proposals must demonstrate novelty in technological developments that will result in enhanced performance (e.g., improved reliability, reduced cost).

(g) Non-invasive Drug Detection. Candidate technologies include low cost, non-invasive, non-urine based technology such as hair analysis, eye tracking, telemetered perspiration, micro-assay card, drug abuse relay bracelet/patch, and non-invasive blood sensors for drug testing and screening.

The NIJ encourages the submission of any research, development, and application proposals that will result in creative, innovative technologies to benefit law enforcement and corrections personnel. All proposals in

technology application, assessment, or practice areas not addressed in the previous focus areas will be considered. You must explain the benefit derived from your proposal that will assist law enforcement and corrections.

IV. Selection Criteria

NIJ is firmly committed to the competitive process for awarding grants. All proposals are subjected to an independent, peer-review panel evaluation. The peer-review panel consists of members with academic, practitioner, technical, and operational expertise in the subject areas of the solicitation. Selection criteria used to evaluate proposals are as follows:

1. Quality and Technical Merit

- o Soundness of methodology, analytic, or technical approach.

- o Innovation and creativity.

- o Feasibility of proposed project; awareness of pitfalls.

- o Awareness of existing research and developmental work currently underway or completed, and related applications.

2. Impact of the Project

- o Understanding the importance of the problem.

- o Potential for significant advance in crime prevention, law enforcement, courts, corrections, or other practice or policy areas.

- o Potential for advancement of scientific understanding of the problem area.

- o Relevance to practice, including development and demonstration in application domains (if applicable).

- o Affordability of proposed end products by law enforcement or corrections users (if applicable), including maintenance and training.

3. Capabilities, Demonstrated Productivity, and Experience of Applicants

- o Qualifications and experience of personnel as related to proposed project.

- o Responsiveness to the goals of the solicitation.

- o Demonstrated ability to manage proposed effort.

- o Adequacy of proposed project management plan including, where appropriate, a task breakdown listing expenditure of resources for each task.

- o Adequacy of proposed resources to perform effort.

4. Budget Considerations

- o Total cost relative to perceived benefit.

- o Use of existing resources to conserve costs.

- o Cost-effectiveness of program or product for application in the criminal justice system (if applicable).

After peer-review panelists' consideration, Institute staff make recommendations to NIJ's Director based on the results of the independent reviews. Final decisions are made by the NIJ Director following consultation with Institute staff.

V. Application Information

Persons interested in submitting research proposals under this solicitation must submit the required application materials. (See below for instructions on obtaining application forms and guidelines.) Applications must include the following information or completed forms to qualify for funding:

1. Topic and Thematic Area Designation form (at the end of this solicitation).

2. Standard Form (SF) 424—application for Federal Assistance.¹
3. Assurances.
4. Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements.
5. Disclosure of Lobbying Activities.
6. Budget Detail Worksheet.²
7. Budget Narrative.
8. Negotiated indirect rate agreement (if appropriate).
9. Names and affiliations of all key persons, including applicant and subcontractor(s), advisers, consultants, and advisory board members. Include name of principal investigator, title, organizational affiliation (if any), department (if institution of higher education), address, phone, and fax.
10. Proposal abstract.³
11. Table of contents.
12. Program narrative or technical proposal (not to exceed 30 double-spaced pages).
13. Privacy certificate (where applicable).
14. References.
15. Letters of cooperation from organizations collaborating in the research project.
16. Resumes.
17. Appendixes, if any (e.g., list of previous NIJ awards, their status, and products [in NIJ or other publications]).

Ten (10) copies of fully executed proposals must be received by NIJ by 4:00 P.M. on October 7,

1999. Proposals must be sent to the following address:

NIJ Science and Technology Solicitation
 [Topic area from the list at the end of this solicitation]
 National Institute of Justice
 Office of Science and Technology
 810 Seventh Street N.W.
 Washington, DC 20531
 [ZIP Code if overnight courier service is used: 20001]

Obtaining Application Forms. To obtain application forms and guidelines for submitting proposals (which include requirements for proposal writers and requirements for award recipients), applicants can:

- o Access NIJ's Funding Opportunities Page on the World Wide Web: (<http://www.ojp.usdoj.gov/nij/funding.htm>). NIJ application policies and forms are available as electronic files that may be downloaded to a personal computer.
- o Make a request to the Department of Justice Response Center at 800-421-6770 (in the Washington, D.C., area at 202-307-1743).

For additional information or to request mail delivery from the National Criminal Justice Reference Service at 800-851-3420.

For further information on NIJ research see:

- o NIJ Research in Brief: *NIJ Awards in Fiscal Year 1998* (NCJ173932).
- o *Building Knowledge About Crime and Justice: The 1999 Research Prospectus of the National Institute of Justice* (NCJ 172883).
- o *Criminal Justice Research Under the Crime Act 1995 to 1996* (NCJ 166142).
- o *National Institute of Justice Year in Review 1997* (NCJ 171678).

o NIJ Research in Brief: 1998 NIJ Research Portfolio (NCJ 171670).

Applicants may wish to discuss their potential research topics with NIJ program staff. Those who wish to do so should contact the Department of Justice Response Center at 800-421-6770. Center staff can provide additional guidance and information to potential applicants and refer them to an appropriate NIJ professional. However, applicants are expected to obtain and carefully read application forms and proposal guidelines in advance.

Notes

1. You should chose a title in block 10 of SF 424 Application for Federal Assistance for your proposal that is descriptive of your project and succinct.

2. When estimating budget requests, investigators should note that NIJ policy

prohibits the use of grant funds for operational, training, or other nonresearch costs of the project.

3. The proposal abstract, when read separately from the rest of the application, is meant to serve as a succinct and accurate description of the proposed work. Applicants must concisely describe the research goals and objectives, research design, and methods for achieving the goals and objectives. Summaries of past accomplishments are to be avoided, and proprietary/confidential information is not to be included. Length is not to exceed 400 words. Use the following two headers: (1) Project Goals and Objectives and (2) Proposed Research Design and Methodology.

Topic and Thematic Area Designation Form

PLEASE MARK THE MOST APPROPRIATE BOXES BELOW AND INCLUDE THIS FORM AS THE TOP SHEET OF YOUR APPLICATION.

Check one:

- Topics
 - Firearms
 - Non-invasive drug-detection technology
 - Nonintrusive concealed weapons and contraband-detection technology
 - Officer-protection technology
 - Investigative and Forensic Science
 - Less-than-lethal incapacitation
 - Information data management technology
 - Counterterrorism technology
 - Location and tracking technology
 - Communications (telephone/radio/Internet) technology
 - Information Analysis Technologies
 - Biometric technologies
 - Other Thematic Areas (write in below)
-

To call or write for more information on the National Institute of Justice, please contact:

National Criminal Justice Reference Service (NCJRS)
Box 6000
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