Dear Mr. Chairman:

This report, prepared pursuant to Public Law 102-564, describes the second year results of the Small Business Technology Transfer (STTR) program.

This report presents the accomplishments and progress of the participating Federal agencies under the STTR program. During fiscal year 1995 the Federal participating agencies awarded 260 STTR funding agreements totaling nearly $34 million. These figures are an increase over the first year totals.

Copies of this report have been provided to the Office of Federal Procurement Policy and the General Accounting Office. The review and analysis were made by the Office of Technology of this Agency.

Sincerely,

Aida Alvarez
Administrator

Enclosure
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Introduction

This report is the second in a series of annual reports presented by the Small Business Administration pursuant to Public Law 102-564. This report covers the operation and administration of the Small Business Technology Transfer Program (STTR) for fiscal year 1995. The report provides data on the results of the first and second year of the STTR program, including the number of solicitations released, the number of proposals received and the number of awards resulting from those solicitations.

Background on the Program

Public Law 102-564

Public Law 102-564, the Small Business Research and Development Enhancement Act of 1992, authorized STTR.

Title I of that legislation amended the Small Business Act by reauthorizing the Small Business Innovation Research (SBIR) Program. At the time it was reauthorized, SBIR had been in effect for a decade, during which it achieved remarkable successes in its program goals of helping small business develop important technology and helping keep the nation at the forefront of technological innovation. Seeking to further expand small business opportunities in the technical arena, Title II of the act, the Small Business Technology Transfer Act of 1992, established STTR.

The STTR program shares the underlying philosophy of its SBIR predecessor in that it targets federally funded research and development as a base for technological innovation that will contribute to the growth and strength of the nation's economy. It differs from its SBIR sister program in its implementation, however, in that STTR reserves its awards for small businesses that pursue technological innovation through cooperative research and development with certain federal laboratories and non-profit scientific and educational institutions.

Duration of the Program

Congress authorized the expenditures in the STTR program for fiscal years 1994, 1995, and 1996.


After extensive hearings by several committees and the review of extensive testimony from numerous experts, government officials, participating small businesses,
Introduction

This is the fourth in a series of annual reports issued by the U.S. Small Business Administration (SBA) pursuant to Public Law 102-564, the Small Business Research and Development Enhancement Act of 1992. It describes operation and administration of the Small Business Technology Transfer program (STTR) for fiscal year 1997. The report also summarizes the results of the first 4 years of STTR program operations, including solicitations released, proposals received and awards resulting from solicitations.

Background on the Program

Public Law 102-564

Title I of Public Law 102-564 amended the Small Business Act to reauthorize the Small Business Innovation Research (SBIR) program. At the time it was reauthorized, the SBIR program had been in effect for a decade, during which it was remarkably successful in achieving its mandate to help small business develop important technology and help keep the Nation at the forefront of technological innovation. Seeking to further expand small business opportunities in the technical arena, Title II Public Law 102-564 authorized establishment of the STTR program.

The STTR program shares the underlying philosophy of the SBIR program. Both programs use federally funded research and development requirements as a base for technological innovation by small businesses to strengthen the American economy. However, the STTR program differs from the SBIR program to the extent that STTR awards are made to small businesses that pursue technological innovation through cooperative research and development with certain Federal laboratories and non-profit scientific and educational institutions.

Duration of the Program


Prior to passage of Public Law 102-564, Congress conducted extensive hearings and reviewed voluminous testimony from experts, Government officials, small businesses, beneficiaries and oversight groups including the General Accounting Office. Success of the SBIR program over the previous decade provided impetus for establishment of the STTR program to further involve small businesses in technological innovation.

Specifically, Congress found that the SBIR program was:

• A successful means of involving small-businesses in Federal research and development:
An effective catalyst for the development of technological innovations by small businesses;

Providing high-quality research and development in a cost-effective manner;

Developing innovative products and services important to national defense, as well as to missions of other participating agencies;

Effectively stimulating commercialization of technology produced through Federal research and development, benefiting both the public and private sectors;

Creating jobs, expanding business opportunities for small firms, stimulating the development of new products and services, and improving the competitiveness of the Nation's high-technology industries; and,

Helping to increase exports from small businesses.

Congress concluded that:

Despite the SBIR program's general success, the proportion of Federal scientific research and development funds received by small business concerns was less than 4 percent; and

Although the SBIR program was successfully implemented by participating Federal agencies, additional outreach efforts were necessary to stimulate increased participation of socially and economically disadvantaged small businesses.
The Small Business Technology Transfer Program

Funding

Federal agencies having an extramural budget for research or research and development in excess of $1 billion annually are required by law to establish STTR programs. Under program guidelines, the percentage of funds an agency must expend under the programs was set at:

- Not less than 0.05 percent of such budget in fiscal year 1994;
- Not less than 0.1 percent of such budget in fiscal year 1995; and,
- Not less than 0.15 percent of such budget in fiscal years 1996 and 1997.

Federal Agencies Participating

The five Federal agencies that meet the funding threshold and are participating in the program are:

- Department of Defense
- Department of Energy
- Department of Health and Human Services
- National Aeronautics and Space Administration
- National Science Foundation

The Three-Phase Structure

Public Law 102-564 structured the STTR program into three phases designed to identify and nurture promising research and development interests within the small business community. These phases are:

Phase I: Awards are made to determine the scientific, technical, and commercial merit and the feasibility of ideas submitted. Phase I awards generally will not exceed $100,000, for efforts of up to 1 year.

Phase II: In Phase II, Phase I projects with the most potential may be funded to further develop ideas to meet agency program needs. Phase II awards will generally not exceed $500,000, for efforts of up to 2 years.

Phase III: No Federal STTR funds are expended during this phase. Program participants pursue commercial applications of the innovations developed in Phases I and II. However, in Phase III, program participants may receive additional non-SBIR Federal funds to develop products and services for use by the Federal Government. They may also receive awards from non-STTR Federal funding sources for continuation of competitively selected research and research and development projects.
Eligibility for Participation in STrR

The STrR program involves cooperative research and development performed jointly by a small business and a research institution. Thus, each STrR project involves at least two partners, each of which must meet eligibility criteria in order for the project to be funded.

To be eligible for an STrR award, a Small Business must:

- Have no more than 500 employees,
- Be independently owned and operated,
- Not be dominant in the field of operation in which it is proposing,
- Have its principal place of business in the United States,
- Be organized for profit, and,
- Be primarily owned by U.S. citizens.

To be eligible for participation in an STrR award, a Research Institution must be:

- A non-profit institution as defined by the Stevenson-Wydler Technology Innovation Act of 1980, or,
- A federally funded research and development center (FFRDC) as identified by the National Science Foundation in accordance with section 35(c)(1) of the Office of Federal Procurement Policy Act.

Thus, most universities and colleges, non-profit research centers, and Government-owned, company-operated laboratories are eligible.

Small businesses interested in participating in the STrR program are required to find a research institution meeting this definition and to develop a working agreement before proposing to compete for an STrR award.

Distribution of Work

An STrR award is intended to be a true partnership venture for both the small business and the research institution. To ensure such a relationship, the program establishes minimum performance levels for each participant. Public Law 102-564 stipulates that under an STrR award, the small business must perform at least 40 percent of the work. Research institution must perform at least 30 percent of the work.

Management of STTR Projects

While conduct of the project is a cooperative research and development venture, under the STrR program the small business must exercise overall management, control, and responsibility for the project.

Participating agencies are required to ensure that the small business manages and controls the funding agreement pursuant to a business plan that provides for the commercialization of the technology being funded.

Protection of Rights

STTR policy directs Federal agencies to protect the rights for data produced during the performance of an STTR project for not less than 4 years from the inception of Phase III. This time period affords the small business
opportunity to protect an STTR-developed innovation through patents, copyrights, or corporate secrets. This helps to ensure security in commercialization of the innovation.

Continued Use of Government Property

STTR guidelines also direct Federal agencies to allow small businesses that use Government equipment during the conduct of an STTR award to continue to do so for not less than 2 years after the beginning of Phase III.

Model Agreements

Participating agencies require that awardees negotiate written agreements between the small businesses and research institutions covering allocation of intellectual property rights and, if any, rights to carry out follow-on research, development, and commercialization. To facilitate this process, participating Federal agencies and SBA make sample model agreements available to awardees. These agreements may be used in whole or in part to assist the awardees in producing their own agreements.

Follow-On Funding Protection

To protect small businesses, the STTR program requires that, to the extent practicable, if Federal agencies intend to pursue research, development or production of a technology developed by a small business under an STTR program, they must enter into follow-on, non-STTR-funded agreements with these small businesses for such research, development, or production.
Authorities and Responsibilities of the Participants

Participating Agencies

As set forth in statute, the authorities and responsibilities of each Federal agency participating in the STTR program are to:

1. Unilaterally determine categories of projects to be included in the STTR program.

2. Issue STTR solicitations according to a schedule determined cooperatively with the SBA.

3. Unilaterally determine research topics within the agency's STTR solicitations, giving special consideration to broad research areas that further one or more critical technologies as identified by either the National Critical Technologies Panel or the Secretary of Defense.

4. Unilaterally receive and evaluate proposals resulting from STTR solicitations.

5. Unilaterally select awardees for its STTR funding agreements and inform each awardee, to the extent possible, of the allowable expenses under the funding agreement.

6. Administer its own STTR funding agreements.

7. Pay recipients on the basis of progress toward or completion of the STTR funding agreement requirements.

8. Submit an annual report on the STTR program to the SBA and the Office of Science and Technology Policy.

9. Develop a model agreement for approval by the SBA that allocates between small businesses and research institutions intellectual property rights and any rights to carry out follow-on research, development, or commercialization.

10. Develop procedures in consultation with the Office of Federal Procurement Policy and the Office of Government Ethics to ensure that federally funded research and development centers that participate in STTR agreements:

   A) Are free from organizational conflicts of interest relative to the STTR program.

   B) Do not use privileged information gained through work performed for an STTR agency or private access to STTR agency personnel in the development of an STTR proposal.

   C) Use outside peer review, as appropriate.

11. Develop procedures for assessing the commercial merit and feasibility of STTR proposals.
Small Business Administration

Public Law 102-564 designates the SBA as the lead Agency to implement the program, govern its policy, and monitor and analyze its performance. As lead Agency, SBA’s authorities and responsibilities are to:

1. Develop, coordinate, and issue a Policy Directive for the general conduct of the STIR programs.

2. Assist small businesses in obtaining Government contracts for research and development.

3. Assist small businesses in obtaining benefits of research and development performed under Government contracts or at Government expense.

4. Develop and maintain a source file and an information program to help ensure each qualified and interested small business the opportunity to participate in technology transfer pilot programs involving Federal agencies.

5. Coordinate with participating agencies a schedule for release of STIR solicitations and prepare a master release schedule that maximizes small businesses’ opportunities to respond to solicitations.

6. Independently survey and monitor the operation of STIR programs within participating Federal agencies.

7. Report not less than annually to the Congress on the STIR programs of the Federal agencies.

8. Consult, cooperate, perform studies, and make recommendations to Government agencies.

9. Consult with representatives of small business to assist and encourage such firms to undertake joint programs for research and development.

The STIR Program Policy Directive

Public Law 102-564 authorized SBA to issue a Policy Directive to conduct the STIR Pilot Program within the Federal Government. Before issuing this Policy Directive, SBA consulted with the heads of the two Federal agencies participating in the formulation of the program: the Commissioner of Patents and Trademarks, and the Director of the Office of Federal Procurement Policy.

The SBA met with the representatives of each of these organizations, and after significant discussion, finalized the Policy Directive effective October 1, 1993. During the drafting process, the five Federal agencies authorized to participate in the program were consulted about the elements of the directive, and were given primary drafts for comment and revision before the directive was published.

The statute required that the directive be published for public comment not later than April 30, 1993, with a 30-day opportunity for public response. This requirement was met with publication of the draft in the Federal Register on April 28, 1993. The comment period closed on May 28, 1993. Four organizations provided comments and suggestions for change.

The Policy Directive guides participating agencies in the operation of the STIR programs. It mandates simplified, standardized, and timely solicitations and funding processes. It also directs participating agencies to minimize regulatory burdens associated with the STIR program. In addition,
the directive provides guidelines for a model agreement to be used by all agencies for allocating intellectual property and other rights between small businesses and research institutions. It also provides procedures to ensure that recipients of STTR awards meet eligibility requirements as small businesses and that they manage and control the performance of the STTR funding agreement. Finally, the directive instructs the participating agencies to develop procedures to ensure follow-on, non-STTR funding agreements with the small business when appropriate.

Surveying, Monitoring, and Reporting

Pursuant to statute, SBA is required to independently survey and monitor operation of STTR programs within participating Federal agencies. The law directs SBA to report not less than annually to the Committee on Small Business of the Senate and the House of Representatives and to the Committee on Science of the House of Representatives on the STTR programs of the Federal agencies.
The STTR Program Policy Directive

Public Law 102-564 authorized the Small Business Administration to issue a Policy Directive to conduct the STTR Pilot Program within the federal government. Before issuing this Policy Directive, the SBA consulted with the heads of the two federal agencies participating in the formulation of the program: the Commissioner of Patents and Trademarks and the Director of the Office of Federal Procurement Policy.

The SBA met with the representatives of each of these organizations, and after significant discussion and modifications, finalized the Policy Directive effective October 1, 1993. During the drafting process, the five federal agencies authorized to participate in the program were consulted about the elements of the directive and were given primary drafts for comment and revision before the draft was published.

The law further stated that the proposed directive be published for public comment not later than April 30, 1993, with at least a 30-day opportunity for public response. This responsibility was met by SBA with publication of the draft in the Federal Register on April 28, 1993, allowing until May 28, 1993, for the receipt of public comment. Four organizations provided comments and suggestions for change.

This Policy Directive guides participating agencies in the operation of the STTR programs. The directive mandates simplified, standardized, and timely solicitations and funding processes. It also directs the participating agencies to reduce regulatory burdens associated with participation in STTR programs. In addition, the Policy Directive also provides guidelines for a model agreement to be used by all agencies for allocating intellectual property and other rights between small businesses and research institutions. It also provides procedures to ensure that recipients of STTR awards meet eligibility requirements as small businesses and that they manage and control the performance of the STTR funding agreement.

Finally, the Policy Directive instructs the participating agencies to develop procedures to ensure follow-on, non-STTR funding agreements with the small business when appropriate.

Surveying, Monitoring, and Reporting

Pursuant to the legislation, the Small Business Administration is to independently survey and monitor the operation of STTR programs within participating federal agencies. The law directs the Small Business Administration to report not less than annually to the Committee on Small Business of the Senate and Committee on Small Business of the House of Representatives on the STTR programs of the federal agencies.
Implementation Actions

SBA Responsibilities

The Small Business Technology Transfer Act of 1992 established specific activities and deadlines for the implementation of the STTR program. The SBA has primary responsibility for implementation, with several specific functions assigned to participating agencies. The Public Law passed on October 28, 1992, mandated that program operation begin on October 1, 1993. SBA uses a Policy Directive to manage the STTR program activities of the participating agencies. This controlling mechanism specifically instructs all participating federal agencies to ensure that essential program operations at each of these agencies is standardized.

Model Agreements

Public Law 102-564 directs SBA to establish guidelines for a model agreement to be used by all STTR participating agencies in allocating intellectual property rights and follow-on rights.

Representatives of each of the five participating agencies issued two model agreements: One published by the Departments of Energy and Health and Human Services and the other published by the Department of Defense, the National Science Foundation, and the National Aeronautics and Space Administration. The SBA approved these model agreements.

Small businesses are required to negotiate agreements between themselves and the research institutions, but they are not required to use the model agreements. Rather, they are free to formulate and execute their own agreements or to use the models in whole or in part.

Research Institutions

The STTR program is designed to foster cooperative research and development efforts between small businesses and research institutions. To ensure a reasonable balance of effort between the parties, the law stipulates that the small business conduct at least 40 percent of an STTR project and the research institution perform at least 30 percent of the work. While this approach encourages the best from each of the parties, it is further mandated that the small business manage and control the project in all STTR funding agreements.
Follow-On Funding Agreements

Following the completion of federal R&D contracts, it is not unusual for the agency involved to have further requirements that result in a continuation of work. It is anticipated that there will be numerous instances where, following the completion of Phase II of STTR, agencies will have remaining requirements to continue development of an innovation or, perhaps, need to produce a product or service developed under STTR. To ensure smooth continuation of this work, to protect the commercial rights to the innovation, and to continue to employ the expertise of the originating STTR small business, the agencies are directed, to the degree practicable, to award any non-STTR, follow-on contracts or grants to the originating small business. To make this process more efficient, the participating agencies have been notified that the competition for an award serves as meeting the requirements of the Competition in Contracting Act. This allows the agencies to award non-STTR, follow-on work to the small business without further competition.

Rights to Data

A major concern of small, innovative firms is that data generated while performing research and development for the federal government will be made public. STTR legislation therefore stipulates that the program provide for the small business to retain the rights to data it generates while performing in the STTR program. These retention rights remain effective for at least four years. The intent of this statute is to provide authority for the participating agency to protect technical data generated under the STTR funding agreement and to refrain from disclosing such data to competitors of the small business. The statute also stipulates that the agency cannot use the information to produce future technical procurement specifications, thus protecting the participating small business until it has a reasonable chance to seek patent protection, if appropriate.

Thus, the Policy Directive mandates that, except for program evaluation, participating agencies must protect technical data for at least four years from the completion of the project that generated the data. The government, however, retains a royalty-free license for government use of any technical data delivered under an STTR funding agreement, whether patented or not.

Critical Technologies

STTR legislation calls for agencies to give special consideration to broad research topics and to topics that further one or more critical technologies. These technologies are identified in the National Critical Technologies Panel reports required under section 603 of the National Science and Technology Policy
Organization and Priorities Act of 1976 or by the Secretary of Defense in accordance with section 2522 of Title 10, United States code. To assist the agencies with this requirement, SBA requested a complete listing of critical technologies from the National Critical Technologies Panel and the Office of the Secretary of Defense. These listings were sent to each participating agency.
TTR – The Program’s Second Year

Public Law 102-564 provides both general guidance and specific instructions concerning the implementation of the STTR program. To ensure a successful implementation, the law specifically directed several important actions and established completion dates. All mandated actions were implemented in a timely manner.

Small-Business Participation

Small business responded to the STTR solicitations by submitting 1,154 Phase I proposals and 92 Phase II proposals to the five participating federal agencies. In this second year of STTR program activity, 239 firms won 238 Phase I awards and 22 Phase II awards. Their share of the $33,671,456 award funding was $19,285,033, representing 57.3 percent of the total funding. The remaining $13,407,864 went to participating research institutions to fund their involvement in the program.

Minority and Disadvantaged Firms

Of the 239 firms that successfully competed for STTR awards, 34 or 14.4 percent, were firms owned by minority or disadvantaged persons. They received $5,454,233 or 16.2 percent of the $33,671,456 total awarded.

Research Institutions

Small businesses interested in participating in the STTR program must find a research institution that meets the program’s definition and develop a working agreement before proposing to compete for an STTR award.

The statistics available at the end of the fiscal year indicate that 239 firms collaborated with 121 research institutions. Of contracts and grants awarded during the year, 209 went to universities and colleges, 32 to Federally Funded Research and Development Centers, and 19 to other non-profit research institutions. The research institutions were located in 38 states and the District of Columbia. Of funds obligated for the fiscal year, small business received 57.3 percent while 39.8 percent went to research institutions.
Solicitation Schedule

STTR policy directs each federal agency participating in the program to issue STTR solicitations in accordance with a schedule determined cooperatively with the SBA. After approval of SBA's master schedule, these agencies issued solicitations early in fiscal year 1995 to invite small business to propose to STTR projects.

After approval of its solicitation schedule, each participating agency provided SBA with information necessary to publish a Pre-Solicitation Announcement. The announcements provided interested small businesses with information on forthcoming opportunities in the STTR program, as well as basic information on program requirements, opening and closing dates of solicitations, and agency contact points for further information.

In fiscal year 1995, the participating agencies had the following solicitation periods:

- Department of Defense - December 1, 1994 through April 7, 1995
- Department of Energy - October 11, 1994 through January 9, 1995
- Department of Health and Human Services - October 1, 1994 through December 1, 1994
- National Aeronautics and Space Administration - January 10, 1995 through March 23, 1995
- National Science Foundation - December 1, 1994 through March 13, 1995

Award Shortfalls

Program policy required participating agencies to expend on STTR awards not less than 0.1 percent of their fiscal year 1995 extramural budget for research and development. In fiscal year 1995, $41,538,568 should have been obligated program wide; actual obligations were $30,301,655. The $11,236,913 shortfall was the result of the Department of Defense, the National Science Foundation, and the National Aeronautics and Space Administration obligating amounts less than required.
Cumulative Data

The following are highlights of accomplishments for the first two years of the program:

- Small businesses have been awarded $30,191,375

- The participating agencies received 3,104 Phase I proposals and 92 Phase II proposals in response to 10 solicitations. There has been a total of 436 Phase I and 22 Phase II awards.

- Minority/disadvantaged-owned firms have received 60 awards, representing 13 percent of all STTR awards; the value of these awards has totaled $7,834,875.

- Universities have been awarded $16,822,080; the FFRDCs have received $2,695,853; and $1,419,565 has been awarded to other non-profits.

- Awards have been made in 38 states and the District of Columbia.
### STTR Research Institutions

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## STTR Research Institutions

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<thead>
<tr>
<th>State</th>
<th>Institution</th>
<th>Location</th>
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<td>Iowa</td>
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<tr>
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<td>University of Kansas</td>
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<td>University of Louisville</td>
<td>University of Louisville</td>
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<tr>
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<td>Lincoln Labs (MIT) (7)</td>
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<td></td>
<td>Charles Stark Draper Lab, Inc.</td>
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<td></td>
<td>Dana-Farber Cancer Institute</td>
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<td>MA Eye &amp; Ear Infirmary</td>
<td>University of Massachusetts (3)</td>
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<td><strong>Weber State University</strong></td>
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<td><strong>Virginia Polytechnical Inst.</strong></td>
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<td>Wyoming</td>
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* () Number of Awards Received
STTR Phase I Awardees

Alabama

Birmingham
Bioelastics Research, Ltd.

Huntsville
AI Signal Research Inc.
Physitron Inc.
Plasma Processes, Inc.

Munford
Alabama Specialty Products

Arizona

Mesa
Zone Technology Inc.

Arkansas

Fayetteville
Bioengineering Resources, Inc.

California

Alameda
Heller & Co.

Berkeley
Thoratec Laboratories

Carlsbad
ISIS Pharmaceuticals
Toranaga Technologies, Inc.

Cerritos
ENGSYS, Inc.

Culver City
Research & Development Lab

El Monte
Chadwick-Helmuth Co., Inc.

Fremont
Microspec

Irvine
Metrolaser, Inc. (2)

La Jolla
Lidak Pharmaceuticals
Tera Biotechnology Corporation

Laguna Niquel
MGR Technology, Inc.
STTR Phase I Awardees

Manhattan Beach
    Opto-Knowledge Systems, Inc.

Menlo Park
    Pharmchem Laboratories, Inc.

Mountain View
    Genpharm International, Inc.
    Nomadic Technologies, Inc.

North Highlands
    Rotordynamics-Seal Research, Inc.

Oakland
    HFTA

Palo Alto
    Deacon Research
    Telos Research

Pasadena
    Sulfonics, Inc.

Redwood City
    Charles Evans & Associates

San Diego
    Aurora Technologies
    Biogeneral

IINC Software, Inc.
    Ligand Pharmaceuticals
    Neurocrine Biosciences, Inc.
    Quantum Group, Inc.
    Surface Optics Corp.
    Viagene, Inc. (2)
    World Information Net. Corp.

San Leandro
    Alameda Applied Sciences Corp.

Santa Ana
    Tolo, Inc.

Santa Clara
    Quantrad Sensor, Inc.

Sunnyvale
    Aracor (2)
    Wagner Associates

Torrance
    ACTA, Inc.

Whittier
    Avantec Corp.
STTR Phase I Awardees

Colorado

Boulder
Astralux, Inc.

Denver
Allos Therapeutics, Inc.
Omni Engineering, Inc.

Wheat Ridge
TDA Research, Inc. (2)

Connecticut

Danbury
Advanced Technology Materials, Inc. (3)

Glastonbury
Thoughtventions Unlimited

New Haven
Apfel Enterprises, Inc.

Seymour
D-Star Engineering (2)

District of Columbia

Washington
Jackson & Tull
Matsys, Inc.

Florida

Gainesville
J. & D. Scientific, Inc.

Miami
Gladys Kidd and Associates

Port Richey
II-VI, Inc. (Virgo Optics Div)

Punta Gorda
Mod Works, Inc.

Tampa
Image Resources, Inc.

Georgia

Atlanta
Photonic Sensor Systems, Inc.
STTR Phase I Awardees

Illinois

Chicago
Thermogen, Inc.

Savoy
Magnetic Reson Microsen Co.

Iowa

Ames
BioForce Lab
Full Spectrum, Inc.

Kansas

Lawrence
Cypress Systems, Inc.

Louisiana

Shreveport
Shreve Biotech

Maryland

Baltimore

Equinox Corp.
Reprotect, L.C.

Bethesda
Proed, Inc.

Cabin John
Neuro Probe, Inc.

College Park
Neocera, Inc.

Columbia
Advanced Thermal Environmental Concepts
Biotechnology Transfer, Inc.
DHR Technologies, Inc.
Martec Corporation

Gaithersburg
Industrial Quality, Inc.
Multispectral Solutions, Inc.

Glen Burnie
Refractory Composites, Inc.

Riverdale
LNK Corporation
STTR Phase I Awardees

Rockville
Cryomedical Sciences, Inc.
Virion Systems, Inc.

Silver Spring
Atlantic Coast Technologies, Inc.

Massachusetts

Andover
Physical Sciences, Inc. (2)

Bedford
Eukarion, Inc. (2)
Spire Corporation

Billerica
Aerodyne Research, Inc. (3)
Nova Research Corp.

Boxboro
VirTek

Cambridge
Altus Biologies, Inc.
Myco Pharmaceuticals, Inc.
Satcon Technology Corp.

Danvers
Abiomed, Inc.

Dover
Prism Company

East Longmeadow
Fiberoptic Fabrications, Inc.

Hadley
Amherst Process Instruments

Harvard

Lexington
Redox Battery, Inc.

Lowell
Leeman Labs, Inc.

Marlborough
Cytect Corporation
STTR Phase I Awardees

Sharon
Prometheus, Inc.

Shrewsbury
Supercon, Inc. (2)

Somerville
Inner Vision Diagnostics, Inc.

Waltham
Foster-Miller, Inc.
Metal Matrix Cast Composites, Inc. (2)

Watertown
Radiation Monitoring Devices (2)

Wayland
Candela Laser Corporation

Westborough
American Superconductor Corp.

Weston
Airborne Research Association

Woburn
Covalent Associates, Inc.
Nz Applied Technologies

Worcester
Genica Pharmaceuticals

Michigan

Ann Arbor
Advanced Modular Power Systems, Inc.
Biomedware, Inc.
Selective Technologies, Inc.

Birmingham
American Propylaea Corp.

Chelsea
Public Data Queries, Inc.

Northville
T/J Technologies, Inc.

Okemos
A.J. Boggs and Company

Oxford
Oxford Biomedical Research, Inc.
STTR Phase I Awardees

Minnesota

Duluth
Cirrus Design Corp.

Minneapolis
Regenerex, Inc.

Missouri

St. Louis
Engineering Software Research & Development
Megan Animal Health

Nebraska

Lincoln
Li-Cor, Inc.

New Hampshire

Londonberry
Diatech, Inc.

Nashua
Advanced Device Technologies

New Jersey

Cherry Hill
AMT, Inc.

Edison
Anacom, Inc.

Lawrenceville
Envirogen, Inc.

Morris Plains
Oil Systems, Inc.

Piscataway
Structured Materials Industries, Inc.

Somerset
Cepra, Inc.

Waldwick
Crystal Assoc., Inc.

Warren
Endorobotics Corp.

Whitehouse
EER Corp.
STTR Phase I Awardees

New Mexico

Albuquerque
  Applied Sciences Laboratory, Inc.
  Chromex, Inc.
  GRE, Inc.
  Lovelace Institutes
  Nanochem Research, Inc.
  TPL, Inc.

Santa Fe
  Southwest Sciences, Inc.

New York

Albany
  Hawk Enterprises

Amherst
  Laser Photonics Technology, Inc.
  Omnipharm Research International

Brooklyn
  Omnitek Research & Development, Inc.

Buffalo
  Amherst Systems
  EGR Associates

East Setauket
  Collaborative Laboratories

Ithaca
  Transonic Systems, Inc.

Latham
  Intermagnetics General Corp.

New York
  Orthogen, Inc.
  Therics, Inc.
  Whitehouse/Reedijk/Arditi

Plainview
  Phoenix Group, Inc.

Rochester
  Dimension Technologies

Stony Brook
  Applied Physics Technologies

Utica
  Infrared Components Corp.
STTR Phase I Awardees

North Carolina

Durham
Magnetic Imaging Technologies, Inc.

Efland
Vander Corporating, Inc.

Research Triangle
Natural Pharmacia International

Ohio

Cedarville
Applied Sciences, Inc.

Centerville
Knowledge Base Engineering, Inc.

Cleveland
Gliatech, Inc.

Dayton
Systran Corp.

Norton
ISOLAB, Inc. (2)

Spring Valley
Fluid Jet Association

Wooster
Prentke Romich Company

Worthington
Nextech Materials, Ltd.

Oklahoma

Stillwater
Nomadic Technologies, Inc.

Oregon

Eugene
Northwest Media, Inc.

Pennsylvania

Kennett Square
Anatek, Inc.

Paoli
Daniel H. Wagner Associates
STTR Phase I Awardees

Philadelphia
Advent Health Technology

Sharon Hill
Industrial Biocatalysis, Inc.

State College
Trs Ceramics, Inc.

Unionville
Sensortex, Inc.

Rhode Island

Narragansett
Laser Fare Atg, Inc.

Tennessee

Knoxville
CTI, Inc.

Manchester
Johanson and Associates

Oak Ridge
RIS Corporation

Texas

San Antonio
Biomedical Enterprises, Inc.
Kalgen

Smithville
Dermigen, Inc.

The Woodlands
Surgimedic/esp

Utah

Draper
Lone Peak Engineering, Inc.

Orem
Moxtek, Inc.

Salt Lake City
FemtoScan Corporation
Optosonics, Inc. (2)
Oxygenerator Technology Develop.
Process Instruments, Inc.

Sandy
Sensar Corporation
STTR Phase I Awardees

Sunset
Cerebral Developments, Inc.

Virginia

Blacksburg
Techlab, Inc.
Virginia Power Technologies, Inc.

Charlottesville
Advanced Device Technologies, Inc.

Christiansburg
Fiber & Sensor Technologies, Inc.

Manassas
Aurora Flight Sciences Corp. (2)

Richmond
Commonwealth Biotechnologies

Sterling
Cruachem, Inc. (2)

Williamsburg
Neurodyne, Inc.

Washington

Arlington
Aeronautical Testing Service, Inc.

Bellevue
STI Optronics, Inc.

Bellingham
Vision Micro Design, Inc.

Issaquah
JX Crystals, Inc.

Kent
Quest Integrated, Inc.

Pullman
Sentel Corp. L.I.C.

Richland
Stirling Technology Company

Seattle
Aptein, Inc.
Rhizogenics Corporation
Seattle Research and Training Center
Virtual I/O, Inc.
STTR Phase I Awardees

West Virginia

*Huntington*
Microbiological Consultants, Inc.

Wisconsin

*Madison*
Seagull Technology, Inc.
Sterling Scientific, Inc.
Stress Photonics, Inc.

*Middleton*
Gammex, Inc.

*Milwaukee*
Advanced Medical Devices, Inc.

Wyoming

*Laramie*
Detectn Limit Tech, LC
STTR Phase II Awardees

California

Berkeley
Dataflex Systems, formerly Dataflow

Mountain View
Immersion Human Interface Corp.

San Francisco
Sam Technology, Inc.

Colorado

Golden
Supercconducting Core Technologies

Connecticut

East Hartford
Ciencia, Inc.

Glastonbury
Scientific Research Association, Inc.

Illinois

Evanston
Fluid Dynamics International

Massachusetts

Lexington
Redox Battery, Inc.

Somerville
Science Research Laboratory, Inc.

Winchester
Newton Scientific, Inc.

New Hampshire

Hollis
Northeast Photosciences

Nashua
GT Equipment Tech, formerly: Ferrofluidics

New Jersey

Paterson
Compact Software
STTR Phase II Awardees

New York

Chestnut Ridge
Lecroy Corp/Jorway Corp.

Pennsylvania

Bally
Bally Ribbon Mills

Lehigh Valley
Wavefront Research, Inc.

Tennessee

Chattanooga
Accurate Automation Corp.

Tullahoma
ERC, Inc.

Texas

Houston
Tomoseis, Inc.

Virginia

Charlottesville
Advanced Device Technologies, Inc.

Fairfax
FM Technologies, Inc.

Washington

Kent
Quest Integrated, Inc.
### AGENCY OBLIGATIONS

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<th>TOTAL PHASE II AWARDS</th>
<th>MINORITY/DISAD. PH II AWARDS</th>
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<th>MIN/DISAD PH I DOLLARS AWARDED</th>
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<td>99,357</td>
<td>99,079</td>
<td>98,074</td>
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### STTR SOLICITATION PROFILE

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<td>NO PH I PROPOSALS RECEIVED</td>
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<td>55</td>
<td>177</td>
<td>79</td>
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### RESEARCH INSTITUTION PROFILE

<table>
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<tr>
<th>NUMBER OF FFRDCS</th>
<th>17</th>
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<tbody>
<tr>
<td>NUMBER OF UNIVERSITIES</td>
<td>74</td>
<td>19</td>
<td>12</td>
<td>25</td>
<td>79</td>
<td>209</td>
</tr>
<tr>
<td>NUMBER OF OTHER NON-PROFIT</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>19</td>
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</table>
## STTR Program Data - Fiscal Year 1995

### Cooperative Research Profile

<table>
<thead>
<tr>
<th></th>
<th>DOD</th>
<th>NSF</th>
<th>DOE</th>
<th>NASA</th>
<th>HHS</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td><strong>Total Dollars of Awards</strong></td>
<td>14,922,341</td>
<td>1,988,729</td>
<td>4,762,217</td>
<td>3,269,610</td>
<td>8,728,559</td>
<td>33,671,456</td>
</tr>
<tr>
<td><strong>Dollars to Small Business</strong></td>
<td>8,678,271</td>
<td>1,183,849</td>
<td>2,860,246</td>
<td>1,873,865</td>
<td>4,688,802</td>
<td>19,285,033</td>
</tr>
<tr>
<td><strong>% to Small Business</strong></td>
<td>58.16%</td>
<td>59.53%</td>
<td>60.06%</td>
<td>57.31%</td>
<td>53.78%</td>
<td>57.29%</td>
</tr>
<tr>
<td><strong>Dollars to Research Institute</strong></td>
<td>5,482,538</td>
<td>804,880</td>
<td>1,725,136</td>
<td>1,395,745</td>
<td>3,999,565</td>
<td>13,407,864</td>
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<tr>
<td><strong>% to Research Institution</strong></td>
<td>36.74%</td>
<td>40.47%</td>
<td>36.23%</td>
<td>42.69%</td>
<td>45.76%</td>
<td>57.29%</td>
</tr>
<tr>
<td><strong>No. Awards to Universities</strong></td>
<td>74</td>
<td>19</td>
<td>12</td>
<td>25</td>
<td>79</td>
<td>209</td>
</tr>
<tr>
<td><strong>Dollars to Universities</strong></td>
<td>4,311,113</td>
<td>795,896</td>
<td>1,216,194</td>
<td>1,108,293</td>
<td>3,550,244</td>
<td>10,981,740</td>
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<tr>
<td><strong>No. Awards to FFRDCs</strong></td>
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<td>0</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td><strong>Dollars to FFRDCs</strong></td>
<td>922,942</td>
<td>0</td>
<td>442,523</td>
<td>141,792</td>
<td>44,900</td>
<td>1,552,157</td>
</tr>
<tr>
<td><strong>No Awards to Other Non-Profits</strong></td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td><strong>Dollars to Other Non-Profits</strong></td>
<td>248,485</td>
<td>8,984</td>
<td>66,419</td>
<td>145,660</td>
<td>404,421</td>
<td>873,969</td>
</tr>
</tbody>
</table>

### Phase I

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Number of FFRDCs</strong></td>
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<td>9</td>
<td>4</td>
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<td>29</td>
</tr>
<tr>
<td><strong>Number of Universities</strong></td>
<td>61</td>
<td>19</td>
<td>7</td>
<td>25</td>
<td>79</td>
<td>191</td>
</tr>
<tr>
<td><strong>Number of Other None Profit</strong></td>
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<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>18</td>
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### Cooperative Research Profile Phase I

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Total Dollars of Award</strong></td>
<td>7,189,148</td>
<td>1,988,729</td>
<td>1,788,429</td>
<td>3,269,610</td>
<td>8,728,559</td>
<td>22,964,475</td>
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<tr>
<td><strong>Dollars to Small Business</strong></td>
<td>4,246,350</td>
<td>1,183,849</td>
<td>1,023,798</td>
<td>1,873,865</td>
<td>4,688,802</td>
<td>13,016,664</td>
</tr>
<tr>
<td><strong>% to Small Business</strong></td>
<td>59.07%</td>
<td>59.53%</td>
<td>57.25%</td>
<td>57.31%</td>
<td>53.72%</td>
<td>56.68%</td>
</tr>
<tr>
<td><strong>Dollars to Research Institute</strong></td>
<td>2,775,055</td>
<td>804,880</td>
<td>633,625</td>
<td>1,395,745</td>
<td>3,999,565</td>
<td>9,608,870</td>
</tr>
<tr>
<td><strong>% to Research Institution</strong></td>
<td>38.60%</td>
<td>40.47%</td>
<td>35.43%</td>
<td>42.69%</td>
<td>45.82%</td>
<td>41.84%</td>
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<tr>
<td><strong>No. Awards to Universities</strong></td>
<td>61</td>
<td>19</td>
<td>7</td>
<td>25</td>
<td>79</td>
<td>191</td>
</tr>
<tr>
<td><strong>Dollars to Universities</strong></td>
<td>2,170,758</td>
<td>795,896</td>
<td>274,683</td>
<td>1,108,293</td>
<td>3,550,244</td>
<td>7,899,874</td>
</tr>
<tr>
<td>Phase</td>
<td>DOD</td>
<td>NSF</td>
<td>DOE</td>
<td>NASA</td>
<td>HHS</td>
<td>Total</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>NO AWARDS TO FFRDCS</td>
<td>15</td>
<td>0</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>DOLLARS TO FFRDCS</td>
<td>518,013</td>
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<td>292,523</td>
<td>141,792</td>
<td>44,900</td>
<td>997,228</td>
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<tr>
<td>NO AWARDS TO OTHER NON-PROFITS</td>
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<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>DOLLARS TO OTHER NON-PROFITS</td>
<td>86,286</td>
<td>8,984</td>
<td>66,419</td>
<td>145,660</td>
<td>404,421</td>
<td>711,770</td>
</tr>
</tbody>
</table>

**Phase II**

| NUMBER OF FFRDCS | 2   | 0   | 1   | 0    | 0   | 3    |
| NUMBER OF UNIVERSITIES | 13  | 0   | 5   | 0    | 0   | 18   |
| NUMBER OF OTHER NON-PROFIT | 1   | 0   | 0   | 0    | 0   | 1    |

| TOTAL DOLLARS OF AWARDS | 7,733,193 | 0 | 2,973,788 | 0    | 0    | 10,706,981 |
| DOLLARS TO SMALL BUSINESS | 4,431,921 | 0 | 1,836,448 | 0    | 0    | 6,268,369 |
| % TO SMALL BUSINESS | 57.31% | 0 | 61.75% | 0    | 0    | 58.54% |
| DOLLARS TO RESEARCH INSTITUTE | 2,707,483 | 0 | 1,091,511 | 0    | 0    | 3,798,994 |
| % TO RESEARCH INSTITUTION | 35.01% | 0 | 36.70% | 0    | 0    | 35.48% |

**Phase II**

| NO. AWARDS TO UNIVERSITIES | 13  | 0   | 5   | 0    | 0   | 18   |
| DOLLARS TO UNIVERSITIES | 2,140,355 | 0 | 941,511 | 0    | 0    | 3,081,866 |

| NO. AWARDS TO FFRDCS | 2   | 0   | 1   | 0    | 0   | 3    |
| DOLLARS TO FFRDCS | 404,929 | 0 | 150,000 | 0    | 0    | 554,929 |

| NO AWARDS TO OTHER NON-PROFITS | 1   | 0   | 0   | 0    | 0   | 1    |
| DOLLARS TO OTHER NON-PROFITS | 162,199 | 0 | 0   | 0    | 0    | 162,199 |
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Telephone (202) 205-6450