THE AIR FORCE INSTITUTE OF TECHNOLOGY: AN INTERGOVERNMENTAL MODEL FOR TODAY'S MILITARY EDUCATION

HEARING

BEFORE THE

SUBCOMMITTEE ON FEDERALISM AND THE CENSUS

OF THE

COMMITTEE ON GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED NINTH CONGRESS

SECOND SESSION

JULY 29, 2006

Serial No. 109–240

Printed for the use of the Committee on Government Reform

Available via the World Wide Web: http://www.gpoaccess.gov/congress/index.html
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

35–620 PDF WASHINGTON : 2007

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON GOVERNMENT REFORM

TOM DAVIS, Virginia, *Chairman*

CHRISTOPHER SHAYS, Connecticut
DAN BURTON, Indiana
ILEANA ROS-LEHTINEN, Florida
JOHN M. MCHUGH, New York
JOHN L. MICA, Florida
GIL GUTKNECHT, Minnesota
MARK E. SOUDER, Indiana
STEVEN C. LATOURETTE, Ohio
TODD RUSSELL PLATTS, Pennsylvania
CHRIS CANNON, Utah
JOHN J. DUNCAN, JR., Tennessee
CANDICE S. MILLER, Michigan
MICHAEL R. TURNER, Ohio
DARRELL E. ISSA, California
JON C. PORTER, Nevada
KENNY MARCHANT, Texas
LYNN A. WESTMORELAND, Georgia
PATRICK T. MCHENRY, North Carolina
CHARLES W. DENT, Pennsylvania
VIRGINIA FOXX, North Carolina
JEAN SCHMIDT, Ohio
BRIAN P. BILBRAY, California

HENRY A. WAXMAN, California
TOM LANTOS, California
MAJOR R. OWENS, New York
EDOLPHUS TOWNS, New York
PAUL E. KANJORSKI, Pennsylvania
CAROLYN B. MALONEY, New York
ELIJAH E. CUMMINGS, Maryland
DENNIS J. KUCINICH, Ohio
DANNY K. DAVIS, Illinois
WM. LACY CLAY, Missouri
DIANE E. WATSON, California
STEPHEN F. LYNCH, Massachusetts
CHRIS VAN HOLLEN, Maryland
LINDA T. SANCHEZ, California
C.A. DUTCH RUPPERSBERGER, Maryland
BRIAN HIGGINS, New York
ELEANOR HOLMES NORTON, District of Columbia

BERNARD SANDERS, Vermont (Independent)

DAVID MARIN, *Staff Director*
LAWRENCE HALLORAN *Deputy Staff Director*
TERESA AUSTIN, *Chief Clerk*
PHIL BARNETT, *Minority Chief of Staff/Chief Counsel*

SUBCOMMITTEE ON FEDERALISM AND THE CENSUS

MICHAEL R. TURNER, Ohio, *Chairman*

CHARLES W. DENT, Pennsylvania
CHRISTOPHER SHAYS, Connecticut
VIRGINIA FOXX, North Carolina
BRIAN P. BILBRAY, California

WM. LACY CLAY, Missouri
PAUL E. KANJORSKI, Pennsylvania
CAROLYN B. MALONEY, New York

EX OFFICIO

TOM DAVIS, Virginia

HENRY A. WAXMAN, California

JOHN CUADERES, *Staff Director*
URSULA WOJCIECHOWSKI, *Professional Staff Member*
JULIANA FRENCH, *Clerk*

CONTENTS

	Page
Hearing held on July 29, 2006	1
Statement of:	
Bowlds, Major General Ted, Commander of the Air Force Research Laboratory; Brigadier General Mark Matthews, Commander of the Air Force Institute of Technology; Hon. Kevin DeWine, Ohio State Senator; Dr. Daniel Curran, president of the University of Dayton; Dr. Jay Thomas, vice president of research and Dean of Graduate Studies at Wright State University; and Dr. Elizabeth Downie, director of the Dayton Area Graduate Studies Institute	10
Bowlds, Major General Ted	10
Curran, Dr. Daniel	37
DeWine, Hon. Kevin	30
Downie, Dr. Elizabeth	52
Matthews, Brigadier General Mark	20
Thomas, Dr. Jay	43
Letters, statements, etc., submitted for the record by:	
Bowlds, Major General Ted, Commander of the Air Force Research Laboratory, prepared statement of	14
Curran, Dr. Daniel,president of the University of Dayton, prepared statement of	39
DeWine, Hon. Kevin, Ohio State Senator, prepared statement of	33
Downie, Dr. Elizabeth, director of the Dayton Area Graduate Studies Institute, prepared statement of	55
Matthews, Brigadier General Mark, Commander of the Air Force Institute of Technology, prepared statement of	22
Schmidt, Hon. Jean, a Representative in Congress from the State of Ohio, prepared statement of	7
Thomas, Dr. Jay, vice president of research and Dean of Graduate Studies at Wright State University, prepared statement of	46
Turner, Hon. Michael R., a Representative in Congress from the State of Ohio, prepared statement of	4

THE AIR FORCE INSTITUTE OF TECHNOLOGY: AN INTERGOVERNMENTAL MODEL FOR TODAY'S MILITARY EDUCATION

SATURDAY, JULY 29, 2006

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FEDERALISM AND THE CENSUS,
COMMITTEE ON GOVERNMENT REFORM,
Dayton, OH.

The subcommittee met, pursuant to notice, at 11 a.m., in Carney Auditorium, National Air Force Museum, Wright-Patterson Air Force Base, 1100 Spaatz Street, Dayton, OH, Hon. Michael R. Turner (chairman of the subcommittee) presiding.

Present: Representatives Turner, Schmidt.

Staff present: Juan Cuaderes, Staff Director, Ursula Wojciechowski, Professional Staff; Juliana French, Clerk.

Mr. TURNER. A quorum being present this hearing of the Subcommittee on Federalism and the Census will come to order. I want to welcome all of you to the subcommittee's oversight hearing entitled, "The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education." I am pleased to have with us today my colleague, Congresswoman Jean Schmidt, who sits also on the Government Reform Committee with me. We are a subcommittee of the full Committee of Government Reform.

Before we begin I want to thank all of you for participating and I want to also acknowledge the hard work that Congressman Hobson, who is not with us today, has done in ensuring that AFIT have very quality resources, quality facilities, and provide a quality education for supporting the Air Force and the Air Force's mission and the mission of DOD.

We all know that Congressman Hobson has been a strong advocate of AFIT and we appreciate that some of the things that we are going to hear about today are the result of his hard work and accomplishments.

Congresswoman Candace Miller and Congressmen Thad McCotter and Geoff Davis from Kentucky who had initially indicated that they were going to be attending had schedule changes. As you may all be aware, this hearing has changed and moved as a result of Congress being in session until 2 a.m. last night.

I want to emphasize my sincere appreciation for Jean Schmidt being here seeing that the House adjourned at 2 a.m. as a result of passing a minimum wage hike and a State tax relief. As a result of our staying until the morning, we have lost a few members of the committee who do have an intent interest in what we are going

to be talking about today which is the private/public partnership and the ways in which we can support Federal initiatives.

The Air Force Institute of Technology is an establishment of immense value. It proudly provides the resources and expertise to advance Air Force research and technology at a reasonable cost to taxpayers. This morning's hearing is an opportunity to understand how AFIT interacts with Federal, State, and local governments to ensure continued support and success.

The subcommittee will also explore the arrangement among the Ohio-based universities, AFIT, and the Air Force Research Laboratory. This cooperative effort espoused by the Dayton Area Graduate Studies Institute [DAGSI], creates a synergistic educational environment greater than the sum of the parts. We will examine how this cooperation maximizes utilization of research resources and educational expertise, enhances graduate education in the Air Force and in Ohio, and ultimately benefits the war fighter.

Many of you know that the 2005 Defense Base Realignment and Closure Commission, or BRAC, targeted the Air Force Institute of Technology for closure in the Commission's most recent recommendations. During BRAC hearings last year, testimony was given advocating AFIT's numerous contributions. Collectively, the Air Force, Congress, State and local governments, and local universities convinced the BRAC Commission not to close AFIT.

The 2005 BRAC selection criteria used by the Defense Department to make recommendations for the closure or realignment of military installations were as follows: The current and future mission capabilities and impact on operational readiness on DOD's total force; the availability and condition of land and facilities at existing and potential receiving locations; the ability to accommodate contingency, mobilization and future total force requirements; the cost of operations and the manpower implications; the extent and timing of potential costs and savings; the economic impact on existing communities; the ability of both existing and potential receiving communities infrastructure to support forces, missions and personnel; and finally, the environment impact.

In publishing the final selection criteria, the Defense Department specifically stated that "the Department must focus on the existing, demonstrated ability of a community to support its installation, especially as potential investment actions may not translate into reality." I am eager to hear today from our distinguished witnesses why AFIT must remain at Wright-Patterson Air Force Base and what efforts have been made to meet the Commission's recommendations.

We welcome remarks from our distinguished panelists. We will hear from Major General Ted Bowlds, Commander of the AFRL, and Brigadier General Mark Matthews, Commander of the AFIT. We will also hear from Ohio State Representative Honorable Kevin DeWine. Then we will hear from Dr. Dan Curran, President of the University of Dayton and Dr. Jay Thomas, Vice President of Research and Dean of Graduate Studies at Wright State University. Last, we will hear from Dr. Elizabeth Downie, Director of DAGSI.

With that, I welcome my colleagues and we all look forward to your testimony. I now yield to my colleague Jean Schmidt for any opening remarks she may wish to make.

[The prepared statement of Hon. Michael R. Turner follows:]

TOM DAVIS, VIRGINIA,
CHAIRMAN

CHRISTOPHER SHAYS, CONNECTICUT
DAN BURTON, INDIANA
ILEANA ROS-LEHTINEN, FLORIDA
JOHN M. McHUGH, NEW YORK
JOHN L. MICA, FLORIDA
GIL GUTKNECHT, MINNESOTA
MARK E. SOUDER, INDIANA
STEVEN C. LaTOURETTE, OHIO
TODD RUSSELL PLATTS, PENNSYLVANIA
CHRIS CANNON, UTAH
JOHN J. DUNCAN, JR., TENNESSEE
CANDICE MILLER, MICHIGAN
MICHAEL R. TURNER, OHIO
DARRELL ISSA, CALIFORNIA
JON C. PORTER, NEVADA
KENNY MARCHANT, TEXAS
LYNN A. WESTMORELAND, GEORGIA
PATRICK T. McHENRY, NORTH CAROLINA
CHARLES W. DENT, PENNSYLVANIA
VIRGINIA FOXX, NORTH CAROLINA
JEAN SCHMIDT, OHIO
BRIAN P. BILBRAY, CALIFORNIA

ONE HUNDRED NINTH CONGRESS

Congress of the United States
House of Representatives

COMMITTEE ON GOVERNMENT REFORM

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

MAJORITY (202) 225–5074
FACSIMILE (202) 225–3974
MINORITY (202) 225–5051
TTY (202) 225–6852

http://reform.house.gov

HENRY A. WAXMAN, CALIFORNIA,
RANKING MINORITY MEMBER

TOM LANTOS, CALIFORNIA
MAJOR R. OWENS, NEW YORK
EDOLPHUS TOWNS, NEW YORK
PAUL E. KANJORSKI, PENNSYLVANIA
CAROLYN B. MALONEY, NEW YORK
ELIJAH E. CUMMINGS, MARYLAND
DENNIS J. KUCINICH, OHIO
DANNY K. DAVIS, ILLINOIS
WM. LACY CLAY, MISSOURI
DIANE E. WATSON, CALIFORNIA
STEPHEN F. LYNCH, MASSACHUSETTS
CHRIS VAN HOLLEN, MARYLAND
LINDA T. SANCHEZ, CALIFORNIA
C.A. DUTCH RUPPERSBERGER, MARYLAND
BRIAN HIGGINS, NEW YORK
ELEANOR HOLMES NORTON, DISTRICT OF COLUMBIA

BERNARD SANDERS, VERMONT,
INDEPENDENT

SUBCOMMITTEE ON FEDERALISM AND THE CENSUS
Congressman Michael R. Turner, Chairman

OVERSIGHT HEARING
STATEMENT BY MICHAEL R. TURNER, CHAIRMAN

Hearing topic: *"The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education."*

Saturday, July 29, 2006
9:30 a.m.
Carney Auditorium, National Museum of the United States Air Force
Wright-Patterson Air Force Base, Ohio

Welcome to the Subcommittee's oversight hearing entitled, *"The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education."* I am pleased to have sitting with me on the dais today my colleagues Congresswoman Jean Schmidt and Congresswoman Candice Miller.

The Air Force Institute of Technology (AFIT) is an establishment of immense value. It proudly provides the resources and expertise to advance Air Force (AF) research and technology at a reasonable cost to taxpayers. This morning's hearing is an opportunity to understand how AFIT interacts with Federal, State, and local governments to ensure continued support and success.

The Subcommittee will also explore the arrangement among the Ohio-based universities, AFIT, and the Air Force Research Laboratory (AFRL). This cooperative effort espoused by the Dayton Area Graduate Studies Institute (DAGSI) creates a synergistic educational environment greater than the sum of the parts. We will examine how this cooperation maximizes utilization of research resources and educational expertise, enhances graduate education in the AF and in Ohio, and ultimately benefits the war fighter.

Many of you know that the 2005 Defense Base Realignment and Closure (BRAC) Commission targeted the Air Force Institute of Technology (AFIT) for closure in the Commission's most recent recommendations. During BRAC hearings last year, testimony was given advocating AFIT's numerous contributions. Collectively, the AF, Congress, State and local governments, and local universities convinced the BRAC Commission not to close AFIT.

The 2005 BRAC selection criteria used by the Defense Department to make recommendations for the closure or realignment of military installations were as follows:

- The current and future mission capabilities and impact on operational readiness on DoD's total force;
- The availability and condition of land and facilities at existing and potential receiving locations;
- The ability to accommodate contingency, mobilization and future total force requirements;
- The cost of operations and the manpower implications;
- The extent and timing of potential costs and savings;
- The economic impact on existing communities;
- The ability of both existing and potential receiving communities infrastructure to support forces, missions and personnel; and,
- The environmental impact.

In publishing the final selection criteria, the Defense Department specifically stated that "the Department must focus on the existing, demonstrated ability of a community to support its installation, especially as potential investment actions may not translate into reality."

I am eager to hear today from our distinguished witnesses why AFIT must remain at Wright-Patterson Air Force Base and what efforts have been made to meet the Commission's recommendations.

We welcome remarks from our distinguished panelists. We will hear from Major General Ted Bowlds, Commander of the AFRL and Brigadier General Mark Matthews, Commander of the AFIT. We will also hear from Ohio State Representative Honorable Kevin DeWine. Then we will hear from Dr. Dan Curran, President of the University of Dayton and Dr. Jay Thomas, Vice President of Research and Dean of Graduate Studies at Wright State University. Lastly, we will hear from Dr. Elizabeth Downie, Director of DAGSI.

With that, my colleagues and I welcome you and look forward to your testimony.

######

Ms. SCHMIDT. Thank you. Thank you, Mr. Chairman, for holding this very important hearing and for all of you panelists who have been waiting patiently for us to get here. As Chairman Turner noted, we were working on some extremely important issues in the wee hours of the morning in addition to raising the minimum wage and helping folks all across the spectrum in working to repeal the death tax so that farmers and other family businesses can keep their valued assets and a valued asset to the community.

We also worked on a pension reform plan which I believe helps folks in the greater Dayton area and certainly helps folks in the greater Cincinnati area, most importantly Delta.

Speaking of Delta, they are a great airline but sometimes you have a little mechanical issue and our flight that was supposed to take off at 6 a.m. took off at 7:30 a.m. so I am a little more tardy than I had hoped to be but arrived safe here.

I especially want to thank my former colleague, Ohio House of Representatives Kevin DeWine for coming here on a Saturday morning and presenting testimony. We used to work together in a past life and I can tell the folks in his district you can't have a better champion for your southern Ohio valleys than Kevin DeWine.

Mike Turner and I share Warren County. I am proud to share it with Congressman Turner because we worked well together on many, many issues. In fact, I have several constituents that actually work here on this base and I am pleased to work with him on this initiative.

The Dayton and Cincinnati area with Wright-Patterson and the GE jet engine facilities in Evandale and Peebles, which is in my district, is a national leader in aerospace innovation and our highly educated work force keeps us at the forefront of the industry. The advancements made at these facilities have spawned many companies creating thousands of jobs and have helped keep the economy in southern Ohio in better shape than it is in other parts of our own State.

The Air Force Institute of Technology is a true asset to the area and I am grateful it survived the BRAC process. With its innovative public and private funding and cooperation between Federal, State, and local governments it is the symbolism of how federalism has made America great. Again, I commend Chairman Turner for pulling an all-nighter with me and being brave enough to stay awake this morning and I look forward to all of your testimony.

[The prepared statement of Hon. Jean Schmidt follows:]

Statement of Congresswoman Jean Schmidt
Committee on Government Reform
Subcommittee on Federalism and the Census
Field Hearing in Dayton, OH 7/29/06
"The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education

Mr. Chairman, thank you very much for holding this very important hearing, and thank you to all the panelists who have been able to change their schedules and bear with us through the many changes in plans. I was in D.C. voting until about 2 am last night, and hopped on the 6 a.m. flight to Cincinnati, so I am pleased that everything worked out and we could still have this hearing today.

I also want to especially thank my former colleague from the Ohio House of Representatives Kevin DeWine for presenting testimony. We used to work together in a past life.

I share Warren County, just south of here, with the Chairman, and several of my constituents work here on the base, so I am very

happy to participate today, even though this is not one of my normal subcommittees.

The Dayton and Cincinnati area, with Wright Patterson and the GE jet engine facilities in Evendale, and Peebles, is a national leader in aerospace innovation, and our highly educated workforce keeps us at the forefront of the industry. The advancements made at these facilities have spawned many companies, created thousands of jobs, and have helped keep the economy in Southern Ohio in better shape than some other parts of our state.

The Air Force Institute of Technology is a true asset to the area and I am very grateful it survived the BRAC process. With its innovative mix of public and private funding and cooperation between the federal, state, and local governments it is a symbol of how federalism has made America great.

Again, I commend Chairman Turner for calling this hearing and look forward to your testimony.

Mr. TURNER. Thank you, Congresswoman Schmidt.

We will now start with our witness and each witness has kindly prepared written testimony which will be included in the record of this hearing. Witnesses will notice that there is a timer with a light on the witness table. The green light indicates that you should begin your remarks and the red light indicates that your time has expired.

It is the policy of this committee that all witnesses be sworn in before they testify. If you would all please rise and raise your right hands.

[Witnesses sworn.]

Mr. TURNER. Please let the record show that all the witnesses have responded in the affirmative. I want to emphasize again my appreciation for each of you doing this. In addition to your written testimony and your statements today and the questions that we have, the importance of this hearing is that the testimony will be entered into the congressional record of this subcommittee. From my reading of your written testimony, and I know certainly from the experience of being in this community and the support AFIT and the DAGSI program, this is a model private/public partnership. It goes directly to one of the elements that the BRAC commission looked at as to a community support for its facility.

It is a great opportunity for the research labs and for AFIT to again tell the story of their importance and their functions at Wright-Patterson Air Force Base. I just greatly appreciate your doing this and the opportunity for us to highlight this within the Government Reform Subcommittee. With that I will begin with you, General.

STATEMENTS OF MAJOR GENERAL TED BOWLDS, COMMANDER OF THE AIR FORCE RESEARCH LABORATORY; BRIGADIER GENERAL MARK MATTHEWS, COMMANDER OF THE AIR FORCE INSTITUTE OF TECHNOLOGY; HON. KEVIN DEWINE, OHIO STATE SENATOR; DR. DANIEL CURRAN, PRESIDENT OF THE UNIVERSITY OF DAYTON; DR. JAY THOMAS, VICE PRESIDENT OF RESEARCH AND DEAN OF GRADUATE STUDIES AT WRIGHT STATE UNIVERSITY; AND DR. ELIZABETH DOWNIE, DIRECTOR OF THE DAYTON AREA GRADUATE STUDIES INSTITUTE

STATEMENT OF MAJOR GENERAL TED BOWLDS

General BOWLDS. Good morning, Mr. Chairman and members of the committee, Representative Schmidt. My name is Major General Ted Bowlds. I look forward for the opportunity to speak to you today. I am the Commander of the Air Force Research Laboratory and have the opportunity to lead a 5,400 person organization with a $1.4 billion budget in the discovery, development, and delivery of advanced technologies that ensure the battlefield superiority of the U.S. military forces. Our mission is greatly enhanced by the close collaboration with the Air Force Institute of Technology. Both organizations enjoy healthy support from the greater Dayton community.

The Air Force Research Lab, AFRL, and the Air Force Institute of Technology, AFIT, have a 50-year history of collaborative activi-

ties and engagement motivated by a common interest in maintaining advancing technology superiority of the U.S. Air Force.

The breadth and depth of cooperative activities is on the upswing. The increase in collaboration has been recently codified with the consolidation of 10 individual agreements and to a single corporate memorandum of agreement. Disagreement cleared the path for streamline access and resource sharing among AFIT and AFRL's numerous sites across the United States.

Key elements of the agreement include joint development of personnel expertise and competencies and research areas of mutual interest and definition of the support required for major collaborative research programs and shared facilities.

The agreement also includes regular review and highlighting of partnership accomplishments along with the identification of opportunities for multi-partner teaming with other organizations to accomplish research objectives. Overall the agreement solidifies the long-standing relationship and common goals that both organizations share and allows each organization to fully leverage our world class resources.

AFRL and AFIT take advantage of multiple opportunities to leverage resources. A vital part of the collaboration is the inflow of AFIT graduates to AFRL upon completion of their basic and advanced degrees. This inflow of students brings program managers, scientists, and engineers in various stages of their career to work in AFRL thus providing a critical part of our work force.

One hundred and seven new AFIT graduates were assigned to AFRL in the fiscal year 2005, a threefold increase from fiscal year 2003 is a trend that we would like to see continued. The exchange of personnel between AFIT and AFRL has not been a one-way street. AFRL lab personnel have held adjunct faculty positions in AFIT, sponsored research, and served as advisers to AFIT on a wide-range of academic and research issues.

AFRL currently holds 27 adjunct faculty appointments with AFIT. Three to seven courses are taught by these adjunct annually. These adjuncts provide guest lector participation and serve on many thesis committees. Additionally, AFIT students research supports AFRL research programs and AFIT faculty members develop research and education programs to support the AFRL community.

The two groups co-share libraries and research facilities. Each organization has interest in enhancing collaboration by establishing a holistic approach including developing repeatable processes with specific goals that are assessed at a strategic partnership review on a regular basis.

While AFIT and AFRL technology directorates have performed coordinated research programs for many years, AFIT and AFRL continue to seek increase in mutual benefits that can aid in our partnership.

With regard to funding resources AFRL provides AFIT nearly $4M in annual research funding across our Technology Directorates. This amount has more than doubled over the past several years. In addition, the AFIT Research Support Fund agreement provides AFIT with resources that allow AFIT faculty and students to contribute to the Air Force basic research program. The agree-

ment also facilitates new faculty startups and development of new areas of research.

As part of that research each AFRL solicits thesis and dissertation topics of Air Force relevance for use by AFIT graduates. AFRL sponsored 60 plus in fiscal year 2005 and 2006 research projects. For example, AFRL sponsored 33 theses, four dissertations involving the air domain, 14 theses, one dissertation in the space domain, 24 theses, five dissertations in the cyber domain, and four theses in the logistics and management.

Average cost avoidance per thesis dissertation is about $118,000. AFRL and AFIT routinely share facilities. For example, AFRL uses 13 of AFIT's facilities and AFIT uses eight of AFRL's facilities this past year for various research efforts. AFRL and AFIT also share laboratory facilities on the AFIT campus providing 571,000 cost avoidance by eliminating duplicate journal subscriptions, computer support and facilities.

Significant sharing of library and laboratory resources between AFRL and AFIT provide ongoing cost containment for both organizations. Participating institutions are the AFIT academic library and the AFRL Wright site technical information division comprised of the technical library and the technical editing groups.

Both organizations encourage ad hoc usage of facilities and equipment on a non-interference basis with mutual agreed-upon support and incremental cost. AFRL and AFIT conduct key periodic events to stimulate constructive interaction between personnel. The most significant event called the Partnership Summit is an annual meeting between the AFIT Commandant and the Commander of the Air Force Research Lab to review activities, assess the progress of initiatives, and review the appropriate new initiatives.

AFRL and AFIT also hold annual interchange meetings to provide AFRL researchers and AFIT faculty with orientation briefings, information about concurrent research thrust and new initiatives, opportunities for collaboration, and facilities tours.

Additionally, Tech Days is an annual event designed for AFIT students to provide an overview of current AFRL technologies, research agendas, present thesis topic requests, and discuss science and engineering career management opportunities.

A partnership working group composed of AFRL chief technologists, AFRL chief scientists, AFIT School of Deans and department heads or their representatives review these thesis topics and presentations, review personnel exchanges opportunities and identify opportunities for collaborative in-house research initiatives and faculty sharing.

AFIT and AFRL continue to develop third party and local community partnerships. One example is the DAGSI, the Dayton Area Graduate Studies Institute and Ohio Student Faculty Engineering Research Group. AFIT faculty collaborated on 35 programs sponsored by DAGSI, most tied to AFRL topics.

Finally, the Advanced Navigation Technology Laboratory has 21 AFIT faculty members from three different departments with 43 active projects and about 30 students with sponsorship from AFRL, NASIC, and other DOD agencies. Central themes are Inertial Navigation System Exploitation and Precision Navigation—anywhere, using anything. This will be critical to the Air Force's new Tech-

nology Vision to "anticipate, find, fix, track, target, engage and assess anything, anytime, anywhere."

How does this benefit AFRL? By increasing inter-directorate collaboration, promoting external collaboration and, enhancing AFRL's in-house research capabilities. The program will also impact AFRL's Focused Long-Term Challenges. These are the fundamental research efforts that will provide the capabilities to the Air Force over the mid and long-term.

Technology challenges being solved by ANT include vision-based navigation, collision avoidance, vision-based control and stabilization, wide-field of view sensing-situational awareness, human supervision of time-critical control systems, agile micro vehicles, and cooperative path planning in adversarial environments.

A new effort titled the AFIT/AFRL Center for Rapid Product Development is underway to allow graduate students to work on real Air Force operational problems in conjunction with AFRL scientists. Particular focus areas will be on rapid technology transition and product development cycle-time reduction.

Students will learn the principles of project management and demonstrate the ability to develop and field new products and systems. This process merges AFIT's need to educate Airmen on key problems with AFRL's new Rapid Reaction Process to provide real-time solutions to urgent warfighter needs within 18 months. Two pilot efforts are underway and are being successfully demonstrated today.

The bottom-line is that AFRL and AFIT have a very effective partnership and are working to make it even greater. Both organizations have a critical role in creating the Air Force of the future, and together are solving future technological challenges.

Thank you for the opportunity to share my thoughts on a vital teaming between AFIT, AFRL, and the greater Dayton community. I look forward to your questions.

[The prepared statement of Major General Bowlds follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE SUBCOMMITTEE ON FEDERALISM AND THE CENSUS

COMMITTEE ON GOVERNMENT REFORM

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: AIR FORCE INSTITUTE OF TECHNOLOGY: A MODEL FOR COORDINATING GOVERNMENT, INDUSTRY AND UNIVERSITY EXPERTISE TO SUPPORT OUR WAR FIGHTERS

STATEMENT OF: MAJOR GENERAL TED F. BOWLDS
COMMANDER, AIR FORCE RESEARCH LABORATORY

JULY 29, 2006

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON GOVERNMENT REFORM
UNITED STATESE HOUSE OF REPRESENTATIVES

AFRL WRITTEN STATEMENT
TO THE
COMMITTEE ON GOVERNMENT REFORM
REGARDING
THE PARTNERSHIP ACTIVITIES OF
THE AIR FORCE RESEARCH LABORATORY
AND
THE AIR FORCE INSTITUTE OF TECHNOLOGY

"The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education."

July 29, 2006

The Air Force Research Laboratory (AFRL) and the Air Force Institute of Technology (AFIT) have a 50-year history of collaborative activities and engagement, motivated by a common interest in maintaining and advancing the technological superiority of the Air Force. The breadth and depth of cooperative activities is on the up-swing. The increased collaboration has recently been codified with the consolidation of 10 individual agreements into a single corporate memorandum of agreement. This agreement cleared the path for streamlined access and resource sharing among AFIT and the AFRL's numerous sites across the United States. Key elements of the agreement include joint development of personnel expertise and competencies in research areas of mutual interest, and definition of the support required for major collaborative research programs and shared facilities. The agreement also includes regular review and highlighting of partnership accomplishments along with identification of opportunities for multi-partner teaming with other organizations to accomplish research objectives. Overall, the agreement solidifies the long standing relationship and common goals that both

organizations share and allows each organization to more fully leverage world-class resources.

RESOURCE COLLABORATION

A vital part of the collaboration is the inflow of AFIT graduates to AFRL upon completion of their basic and advanced degrees. This inflow of students brings program managers, scientists, and engineers in various stages of their careers to work in AFRL, thus providing a critical part of our workforce. One hundred and seven new AFIT graduates were assigned to AFRL in FY05--a three-fold increase from FY03, and a trend that we would like to see continue.

The exchange of personnel between AFIT and AFRL has not been a one-way street. AFRL personnel have held adjunct faculty appointments in AFIT, sponsored research, and served as advisors to AFIT on a wide range of academic and research issues. AFIT student research has supported AFRL research programs and AFIT faculty members have developed research and educational programs to support the AFRL community. The two groups have share co-located libraries and some research facilities. Each organization has an interest in enhancing collaboration by establishing a holistic approach; including developing repeatable processes with specific goals that are assessed at a strategic partnership review on a regular basis. While AFIT and AFRL technology directorates have performed coordinated research programs for many years, we continually seek to increase the mutual benefits that can be attained from the partnership.

AFRL provides AFIT nearly $4M in annual research funding across all of our Technology Directorates. This funding amount has more than doubled over the past

several years. The AFIT Research Support Fund agreement provides AFIT with resources that allow AFIT faculty and students to contribute to the Air Force basic research program. The agreement also facilitates new faculty start-ups and development of new areas of research.

NEW EDUCATION OPPORTUNITIES

AFRL and AFIT are investigating new opportunities, including Fellowship and Scholarship programs, to attract students, scientists and engineers to both AFIT and AFRL. In addition, both organizations are investigating the establishment of AFIT education opportunities for AFRL members. These new opportunities will be jointly developed, fall within each organization's funding capabilities, and be tailored to the unique needs of AFRL through distance learning or on-site courses.

AFIT OUTREACH INCREASING

With an AFIT Operating Location opening at Kirtland in 2003, AFIT outreach programs at AFRL are increasing. Currently, a System Engineering Certificate Program is available at both Wright-Patterson and Kirtland AFB. The center at Kirtland allows partnership with University of New Mexico for follow-on degrees in Electrical Engineering, along with AFIT Directed Energy and optics courses, which are available to AFRL members. An Operational Technology (OPTEC) Certificate Program is taught on Wright- Patterson AFB. Planned programs include expansion of the Systems Engineering Certificate Program to Eglin AFB in 2006 and a Certificate Program in Advanced Navigation at Wright-Patterson in 2006.

THIRD PARTY PARTNERSIPS

AFRL and AFIT continue to develop third party and local community partnerships. One example is the Dayton Area Graduate Studies Institute, an Ohio Student-Faculty Engineering Research fellowship. AFIT faculty collaborated on 35 research programs sponsored by DAGSI, most tied to AFRL topics. The Measures and Signals Intelligence (MASINT) Development Consortium is a collaboration between National Air and Space Intelligence Center (NASIC), AFIT and AFRL. In addition, an effort is under development between the Wright-Brothers Institute, AFRL, University of Dayton, and AFIT to further research related to laser communications and laser radar.

Finally, the Advanced Navigation Technology Laboratory has 21 AFIT faculty members from three different departments with 43 active projects and about 30 students with sponsorship from AFRL, NASIC, and other DoD agencies. Central themes are Inertial Navigation System Exploitation and Precision Navigation—anywhere, using anything. This will be critical to the Air Force's new Technology Vision to "anticipate, find, fix, track, target, engage and assess anything, anytime, anywhere." How does this benefit AFRL? By increasing inter-directorate collaboration, promoting external collaboration and, enhancing AFRL's in-house research capabilities. The program will also impact AFRL's Focused Long Term Challenges–these are the fundamental research efforts that will provide the capabilities the Air Force will need over the mid and long term. Technology challenges being solved by ANT include: vision-based navigation, collision avoidance, vision-based control and stabilization, wide-field of view sensing-situational awareness, human supervision of time-critical control systems, agile micro vehicles, and cooperative path planning in adversarial environments.

NEW RAPID PRODUCT DEVELOPMENT EFFORT

A new effort titled the AFIT/AFRL Center for Rapid Product Development is underway to allow graduate students to work on real Air Force operational problems in conjunction with AFRL scientists. Particular focus areas will be on rapid technology transition and product development cycle-time reduction. Students will learn the principles of project management and demonstrate the ability to develop and field new products and systems. This process merges AFIT's need to educate Airmen on key problems with AFRL's new Rapid Reaction Process to provide real-time solutions to urgent warfighter needs within 18 months. Two pilot efforts are underway and are being successfully demonstrated today.

CONCLUSION

The bottom-line is that AFRL and AFIT have a very effective partnership and are working to make it even greater. Both organizations have a critical role in creating the Air Force of the future, and together are solving future technological challenges.

Mr. TURNER. Thank you very much.

General Matthews, I want to particularly thank you for preparing and attending today, especially recognizing the fact that you will be leaving AFIT on Monday. Thank you so much as you have so many other duties and issues that you are preparing for in the transition that you be present and spend some of your time here with us today.

STATEMENT OF BRIGADIER GENERAL MARK MATTHEWS

General MATTHEWS. Thank you, sir. I would like to thank all the members for this opportunity to speak about the institution that has been an integral part of this country's air and space dominance for almost 90 years, the Air Force Institute of Technology, or AFIT.

Despite its history and contributions, however, as was pointed out, at times some have questioned the need for a defense graduate school. It was shortly after assuming command of AFIT just over a year ago that I learned that the Base Realignment and Closure Commission's decision to review whether it would be most appropriate to align AFIT with the Naval Post-Graduate School in Monterey or close it.

While facing potential closure was not the way I would have chosen to start my new job, the review proved to be a great benefit as it affirmed the unparalleled value of AFIT in providing responsive defense focus education and research to not only the Air Force but all elements that provide for the security of our Nation including our sister services, coalition partners, and defense affiliated civilians.

Quite simply, knowledge is power and it is knowledge that makes us the most powerful military in the world. Though validated, other challenges have loomed for AFIT. The cost of the ongoing war and modernization are forcing tough choices most prominently reflected and previously announced Air Force personnel cuts. AFIT, too, will have to adjust to these fiscal realities.

This does not mean our Air Force leadership is not strongly committed to education. In April of this year Secretary of the Air Force Wynne and our Chief General Moseley issued a joint "Letter to Airmen" where they stated "to succeed, our expeditionary Air Force will need all the cultural, political, and technical skills available. One of the most effective ways to develop this knowledge is through advanced education."

In fact, AFIT is working with our headquarters to revamp the system by which we determine those competencies needed by our Airmen to include advanced education.

In conjunction with this restructured requirements process, we at AFIT are also pursuing a fundamental change in our traditional business model as we seek to diversify the AFIT student population with more sister service, civilian, and coalition partner students. Not only does this provide our students a richer learning experience but sustains an educational capacity while the Air Force adapts to a smaller force size.

Supporting this business transformation is an expanded AFIT research program. While AFIT has seen a doubling in its sponsored research over the last 5 years, thanks largely, as General Bowlds pointed out, with our special relationship with our neighbors in the

Air Force Research Laboratory, I think for many reasons we should do more.

Foremost, we have an outstanding faculty, military and civilian, who are well versed in the operations and needs of the Air Force and the Department of Defense. The fruits of their research pay a direct and immediate dividend to our Nation's security. Additionally, a strong research program underpins the excellence we bring to bear in the classroom.

Finally, strengthening AFIT's reputation as a premier research organization increases its attractiveness to the potential students and faculty among whom we find ourselves increasingly in competition from our sister institutions.

By using research funding to sponsor student tuition we leverage the faculty and facilities of AFIT and AFRL while creating a talent pool many of whom will elect to continue their efforts right here in the Miami Valley. Additionally, reaching out more to civilian students is a natural progression for AFIT as the Air Force continues to transform itself by focusing our military members on expeditionary operations and relying more on the total force including civilians to execute traditional state-side mission.

Here I think our involvement in the Dayton Area Graduate Studies Institute, or as we all know it DAGSI, is most constructive. With DAGSI there already exist a structure that provides scholarships and brings students to AFIT. I envision a natural synergy as we grow research funding to augment DAGSI scholarship funds. More students means more research and more research funding which together better enables AFIT to sustain recent growth.

Additionally, the diversity of programs offered among the institutions of the DAGSI coalition provide an opportunity for the Air Force to broaden the educational experience of AFIT students in consonance with the Air University goal of producing expeditionary airmen ready to deploy, operate, and communicate with people of other cultures in reaching any region of the world.

Let me repeat, knowledge is power. It was knowledge that innovatively married Air Force Combat Controllers on a wooden saddle with a GPS receiver to guide the devastating destruction of the Taliban just a few weeks after September 11th. It was that knowledge that found Zarqawi and introduced him to whatever awaits him in the next life, courtesy of your U.S. Air Force and our Joint team.

It is that knowledge that will allow us to penetrate and provide precise combat defense against any future adversary. And it will be knowledge that will sustain those who follow as they battle unanticipated threats to our Nation's security whether through the air, space or cyberspace 90 years hence.

I thank you for your support.

[The prepared statement of Brigadier General Matthews follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE SUBCOMMITTEE ON FEDERALISM AND THE CENSUS

COMMITTEE ON GOVERNMENT REFORM

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: AIR FORCE INSTITUTE OF TECHNOLOGY: A MODEL FOR COORDINATING GOVERNMENT, INDUSTRY AND UNIVERSITY EXPERTISE TO SUPPORT OUR WAR FIGHTERS

STATEMENT OF: BRIGADIER GENERAL MARK T. MATTHEWS
COMMANDANT, AIR FORCE INSTITUTE OF TECHNOLOGY

JULY 29, 2006

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON GOVERNMENT REFORM
UNITED STATESE HOUSE OF REPRESENTATIVES

WRITTEN STATEMENT OF BRIGADIER GENERAL MARK T. MATTHEWS
COMMANDANT, AIR FORCE INSTITUTE OF TECHNOLOGY
FOR
FIELD HEARING
ON
AIR FORCE INSTITUTE OF TECHNOLOGY:
AN INTERGOVERNMENTAL MODEL
FOR TODAY'S MILITARY EDUCATION

29 JULY 2006

INTRODUCTION

Congressman Turner, thank you for this opportunity to speak about an important institution that's been an integral part of this country's air and space dominance for almost ninety years, the Air Force Institute of Technology: AFIT.

AFIT has a remarkable history best reflected in a long line of distinguished graduates that includes General Jimmy Doolittle whose creative genius provided FDR a sovereign option—when none existed—to strike into the Japanese heartland, a response that gave our country a critical moral victory at the onset of WWII; General Bernie Schriever who assuaged our country's fears following the launch of Sputnik by building the Air Force space and ballistic missile programs; General Don Lamberson who demonstrated the viability of laser weapons and established AFIT as a world renowned center for high energy laser research; and a multitude of astronauts including our most recent shuttle Commander, Colonel Steve Lindsey and his Mission Specialist, reserve Colonel Mike Fossum.

AFIT's also been intimately involved in the current war on terror not only through the contributions of our graduates but with ongoing research focused on areas such as taking down enemy networks and stopping improvised explosive devices. The recapitalization of the Air Force fleet, most notably represented by the introduction of the F-22 Raptor and the soon to follow F-35 Lightning II, are successes heavily influenced by AFIT graduates and research across an array of technologies fused in these amazing platforms. Our continued evolution of Unmanned Aerial Vehicles will be aided by AFIT's demonstrating the feasibility of autonomous air refueling. And in looking to the future where we face uncertain threats, such as portended by the recent North Korean launch of a missile with the potential to reach our territory, AFIT is playing a pivotal role as represented by the directed energy technology incorporated on the Airborne Laser.

At a national level, our students well represent AFIT. In a National Security Agency sponsored cyber-warfare exercise pitting the services in head-to-head competition this past spring, our AFIT team not only had the top point total, but was the only team to exceed a 100% score through bonus points. Showing the diversity of our student body, another team from our management program won a State Department national case study in May beating out such institutions as Georgetown, University of Wisconsin-Madison, and a school near here you may have heard of, one commonly referred to as "The Ohio State."

Yet, despite its history and contributions, at times some have questioned the need for a defense graduate school. In fact, though reversed two years later by Secretary of the Air Force Whit Peters, the Air Force decided to close AFIT in 1996. And it was shortly after

assuming command of AFIT just over a year ago that I learned of the Base Realignment and Closure Commission's decision to review whether it would be most appropriate to align AFIT with the Naval Post Graduate School in Monterey or, again, close it.

While facing potential closure was not the way I would have chosen to start my new job, the review proved to be of great benefit as it affirmed, as we affirmed in 1998, the unparalleled value of AFIT in executing its mission. That mission is to provide responsive, defense focused education and research to not only the Air Force, but all the elements that provide for the security of our nation; including our sister services, coalition partners and defense affiliated civilians. Quite simply, knowledge is power; and it's our knowledge that makes us the most powerful military in the world.

AIR FORCE PRIORITIES

Validated, AFIT's future looked bright; but other challenges loomed. Two top Air Force priorities as articulated last fall by our new Chief, General Moseley, were to win the war on terror and recapitalize our fleet, arenas, as discussed earlier, in which AFIT is heavily engaged. Nonetheless, the costs of the ongoing war and modernization are forcing tough choices most prominently reflected in previously announced Air Force personnel cuts. While AFIT has seen significant growth in its student body and faculty over the last few years, it's likely AFIT too will have to adjust to these fiscal realities.

But this does not mean our Air Force leadership is not strongly committed to education. In April of this year Secretary of the Air Force Wynne and our Chief issued a joint "Letter to Airmen" where they stated "to succeed, our expeditionary Air Force will need

all the cultural, political, and technical skills available. One of the most effective ways to develop this knowledge is through advanced education."

NEW MODEL FOR ADVANCED ACADEMIC DEGREE REQUIREMENTS

Questions remain, however, on what mix of these competencies—cultural, political, technical—and in what numbers, best balance the future needs of the Air Force with current operational demands. In fact, AFIT is working with our Air Force headquarters in revamping the system by which we determine those competencies needed by our Airmen, to include advanced education. Under our proposal we would invoke a corporate process to determine both the mix and number of advanced degrees to meet current and projected requirements. Contrasted against today's billet-based system—one where the "owners" of billets determine whether a given job requires an advanced degree—such a capabilities-based approach can better anticipate future needs and adapt to emerging requirements.

NEW AFIT BUSINESS MODEL

In conjunction with this restructured requirements process, we at AFIT are also pursuing a fundamental change in our traditional business model. As you are well aware, AFIT is an appropriated activity with the cost of educating our students predominantly accounted for in the Air Force's annual budget. It's only been recently—largely through congressional support from the Ohio delegation—that AFIT has received the authority to charge and retain tuition for students from the Army, the Navy and the Department of Homeland Security. The ability to do so is critically important as we seek to diversify the AFIT student population with more sister-service students. Not only does this provide

our students a richer learning experience, but sustains an educational capacity while the Air Force adapts to a smaller force size and weathers current fiscal demands. AFIT's intent is to present a comprehensive plan that outlines needed further steps to establish a portion of AFIT operations under this fee-for-service model.

EXPANDED RESEARCH

Supporting this business transformation is a robust AFIT research program. While AFIT has seen a doubling in its sponsored research over the last five years, thanks largely to the special relationship with our neighbors in the Air Force Research Laboratory (AFRL), I think—for many reasons—we should do more. Foremost we have an outstanding faculty, military and civilian, who are well versed in the operations and needs of the Air Force and the Department of Defense. The fruits of their research pay a direct and immediate dividend to our nation's security. Additionally, a strong research program underpins the excellence we bring to bear in the classroom as we shape the minds that will guide our future operations. Finally, strengthening AFIT's reputation as a premier research organization increases its attractiveness to the potential students and faculty among whom we find ourselves increasingly in competition from our sister institutions.

DAGSI

Here I think our involvement in the Dayton Area Graduate Studies Institute, or as we all know it, DAGSI, is most constructive. With DAGSI, there exists a structure that provides scholarships and brings students to AFIT. We believe that in its 10 years of service DAGSI has served AFIT well in making AFIT, AFRL and the Air Force better known to the Ohio community.

CONCLUSION

Sadly, I'll be leaving AFIT and the Dayton area this coming Monday. My family and I have immensely enjoyed our all too short tour here, but will follow with great interest the future of this institute and this community. As I reflect over my short year here, my thoughts wander back to Colorado Springs where I entered the Air Force Academy over three decades ago. One of the Academy's hallmarks is the Eagle and Fledgling statue inscribed with the words "Man's flight through life is sustained by the power of his knowledge."

Let me repeat: that knowledge is power. And it's because of this that the United States Air Force is the most powerful military force in history. It's that knowledge I witnessed September 11th, 2001 in the Pentagon that allowed my compatriots to adapt to an unforeseen circumstance and secure our nations airways as our Command Center filled with smoke. It's that knowledge that innovatively married Air Force Combat Controllers on a wooden saddle with a GPS receiver to guide the devastating destruction of the Taliban just a few weeks later. It was that knowledge that found Zarqawi and introduced him to whatever awaits him in the next life, courtesy of your United States Air Force and our Joint team. It's that knowledge that will allow us to penetrate undetected, drop a weapon outside the range of enemy defenses and have it autonomously glide to within my height of its target while leaving unscathed an innocent bystander. And it will be that knowledge that will sustain those who follow us as they battle unanticipated threats to our nation's security—whether through the air, space or cyberspace—thirty years hence.

As Secretary Wynne stated this past April "In a smaller, leaner and more expeditionary-focused Air Force, it is essential that our Airmen have the knowledge and competency to accomplish our mission." That's why AFIT is important to the Air Force and our country. I thank you for your support.

Mr. TURNER. I appreciate your connection of what you do here directly to what is going on on the battle field of today. When I read your paragraph making that connection, I got goosebumps and I did again when you said it. It is absolutely what Americans see on Fox News and CNN—the advantage the United States has. Many times we forget that it is the result of direct work that is being done here at Wright-Patterson Air Force Base or other research areas that are necessary in order for us to be ahead and in order to be able to defend ourselves so I appreciate how you are highlighting that.

Representative DeWine, I thank you for being here also. I know that not only are you no stranger to testifying. Certainly being in the House of Representatives you have been a leader in receiving testimony. I appreciate your commitment to Wright-Patterson Air Force Base because on a State level you have been a strong advocate for Wright-Patt.

The private/public partnership that represents DAGSI I know is not the only private/public partnership in which you're involved in making sure that the State is a supporter of what is the largest single-site employer in the State. Your knowledge and expertise that you have garnered by your work at Wright-Patterson Air Force Base I know enhances our success at the State level so thank you for being here today.

STATEMENT OF HON. KEVIN DEWINE

Mr. DEWINE. Super. Thank you. Mr. Chairman and Congresswoman Schmidt, thank you for holding this hearing today and for providing me the opportunity to testify about the Air Force Institute of Technology and its consortium with the Dayton Area Graduate Studies Institute.

My name is Kevin DeWine and I represent the 70th House District in the Ohio House of Representatives, which includes most of Wright-Patterson Air Force Base all except for this museum right here. Mr. Chairman, as the base's principal representative in the Ohio House, I want to thank you for your strong record of leadership and support for Wright-Patterson Air Force Base, particularly last year during the BRAC process. I also want to recognize the entirety of Ohio's congressional delegation, including Congresswoman Schmidt, especially Congressman Hobson for its tireless work to protect and enhance Ohio's varied and diverse military defense installations.

As you may know, and as many of you know, Wright-Patterson Air Force Base is the largest single-site employer in the State of Ohio with about 22,000 employees and hundreds of millions of dollars spent every year on construction, equipment, supplies, and local contracts. The base has an estimated impact of almost $3 billion a year which is why most of us pay a little bit of attention to what goes on over here.

Ladies and gentlemen, it is no surprise to any of you that Ohio's economy is changing. In order to ensure that we are ready to meet the challenges of the new economy, we need to better prepare our work force of today and tomorrow by giving the tools and skills necessary to compete for high-tech, high-paying jobs.

In the legislature my colleagues and I recognize this and we are actively working to provide today's students with an education that prepares them for future success. To that end we are looking at ways to increase the number of students who pursue degrees in the STEM disciplines: science, technology, engineering, and mathematics. We know that these fields represent growing trends and by increasing the number of graduates in these areas we can provide the types of employees that companies are looking for today and tomorrow. Notably, this is part of DAGSI's mission.

Since it is creation in 1994 DAGSI's mission has been to increase and improve the quantity and quality of graduate, educational, and research opportunities, particularly in the STEM disciplines, and to promote economic development in Ohio.

Working closely with AFIT it has become a critical component of our emerging high-tech economy by providing a needed focus on highly specialized fields of research.

DAGSI allows member schools to combine resources including faculty and facilities to meet the evolving needs of the Air Force and to offer greater value to their students as well as our community.

Since its inception, the State of Ohio has provided more than $50 million for the DAGSI/AFIT consortium demonstrating the deep and long-term support of AFIT and the Air Force by the State of Ohio.

The intellectual capital brought to Ohio and developed within AFIT has become an important resource as we continue the pursuit of a technology based economy. It is a key asset in our effort to keep Dayton and Ohio in the forefront of technology development with its near 1,000 students and a faculty of close to 700.

Keep in mind in this case, a "student" is usually an Air Force officer and is equivalent to a high-value, high-wage job in terms of economic development. AFIT's presence in Ohio represents a significant positive economic impact.

As you well know, and has been highlighted already, AFIT has been threatened by two previous BRAC processes. In both instances, the base closure commission rejected the proposals to close AFIT, in part, because we have been able to articulate the success story that we have created in Dayton for AFIT through DAGSI.

Our success has been rooted in meeting the needs for high-quality graduate technical education while recognizing today's budget realities. This unique consortium creates a best of breed education that meets the changing needs of today's war fighter while providing significant economic development and intellectual benefits for our region and for Ohio.

We in the Dayton region, home to the Wright brothers and so many other technology pioneers, are proud of our heritage. We know, however, that we cannot rest on the achievements of the past. We need to show that we are still home to creativity and cutting-edge technologies. The DAGSI and AFIT partnership has a decade-long track record of benefiting the Air Force and the State of Ohio. It is in the best interest of all of us that we continue to foster the success of this partnership now and for years to come.

Thank you again for holding this hearing on this important component of our Nation's defense and Ohio's changing economy. I would be happy to take any questions when the chairman deems appropriate. Thank you.

[The prepared statement of Hon. Kevin DeWine follows:]

Testimony of Hon. Kevin DeWine
Member, Ohio House of Representatives

Field Hearing of the Subcommittee on Federalism and the Census
House Committee on Government Reform
"The Air Force Institute of Technology: An Intergovernmental Model for Today's Military Education"

National Museum of the United States Air Force
July 29, 2006

Mr. Chairman and members of the subcommittee, thank you for holding this hearing and for providing me the opportunity to testify about the Air Force Institute of Technology (AFIT) and the Dayton Area Graduate Studies Institute (DAGSI).

My name is Kevin DeWine. I represent the 70th District in the Ohio House of Representatives, which includes most of Wright-Patterson Air Force Base. Mr. Chairman, as the base's principal representative in the Ohio House, I want to thank you for your record of support for Wright-Patterson, particularly last year during the BRAC process. I also want to recognize the entirety of Ohio's Congressional delegation for its tireless work to protect and enhance Ohio's military and defense installations and the Dayton Development Coalition for spearheading our efforts here locally.

In today's global economy, states, as well as nations, talk about competing with knowledge, competing on technological advancement and innovation. The Dayton area and the state of Ohio are well suited to take advantage of this environment with research and development gems such as Wright Patterson Air Force Base, the NASA Glenn Center in Cleveland and our many premier educational research institutions. Here in the Dayton region, we are proud to have two unique entities (AFIT and DAGSI) that allow us to showcase and utilize these resources for the economic benefit of all involved.

Ohio's economy is changing. Gone are the days when we could rely on agriculture and manufacturing to lead our economy. In order to ensure that Ohio is ready to meet the challenges of the new economy, we need to better prepare our future work force, giving them the tools and skills necessary to compete for high-tech, high-paying jobs. In the legislature, my colleagues and I are actively working to provide today's students with an education that prepares them for future success. To that end, we are looking at ways to increase the number of students who pursue degrees in the STEM disciplines – science, technology, engineering and mathematics. These fields represent growing trends, and by increasing the number of graduates in these areas we can provide the types of employees companies are looking for today. Notably, this has been a part of DAGSI's mission.

Since its creation in 1994, DAGSI's mission has been to increase and improve the quantity and quality of graduate educational and research opportunities in the STEM disciplines and to promote economic development in Ohio. Working closely with AFIT, it has become a critical component of our emerging high tech economy by providing a needed focus on highly specialized fields of research. DAGSI allows member schools to combine resources, including faculty and facilities, to offer greater value to their students and the Air Force as well as our community. Since its inception, the State of Ohio has provided more than $50 million for the DAGSI and AFIT partnership, demonstrating the deep and long-term support of AFIT and the Air Force by the State of Ohio.

The intellectual capital brought to Ohio and developed within AFIT has become an important resource as we continue the pursuit of a technology based economy. AFIT, located on Wright-Patterson Air Force Base just outside Dayton, is a fully-accredited graduate school that offers masters degrees in engineering, management, and logistics, and Ph.D. degrees in

engineering. AFIT's world-class facilities and faculty make it one of our nation's top universities. It is a key asset in our effort to keep Dayton and Ohio in the forefront of technology development with its 1,000 students and a faculty and staff of close to 700. Keep in mind that in this case a "student" is usually an Air Force officer and is equivalent to a high-value, high-wage job in terms of economic development. AFIT's presence in Ohio represents a significant economic impact.

Moreover, AFIT is a major part of Wright-Patterson Air Force Base, which is the largest employer at a single site in Ohio. With about 22,000 employees, and hundreds of millions of dollars spent every year on construction, equipment, supplies and local contracts, the base has an estimated economic impact of $2.8 billion.

As you well know, AFIT has been recommended for closure by two previous BRAC processes (1996 and 2005.) In both instances, the base closure commission rejected the proposals to close AFIT, in part, because we have been able to articulate the success story that we have created in Dayton for AFIT through DAGSI.

Despite our two victories in the last decade to keep AFIT open, we can expect additional new challenges in the coming years from people who do not understand the unique contributions AFIT makes to our national defense. We will again have to be prepared to defend AFIT.

For their part, the staff and faculty of AFIT can defend the institution by continuing to provide the highest quality education possible while directing teaching and research to the unique needs of the Defense Department. The members of our ever-vigilant Congressional delegation have rallied around AFIT and we can expect their strong support in the future. But it is also critical for the community, the State of Ohio, and the nearby educational institutions to

underscore the reasons why AFIT needs to stay open. AFIT is too important to our region to lose.

In the decade of its existence, DAGSI has successfully supported AFIT and the DAGSI partners. In doing so, it has achieved its mission of promoting economic development in Ohio.

We in the Dayton Region, home to the Wright brothers and so many other technology pioneers, are proud of our heritage. We know, however, that we cannot rest on the achievements of the past. We need to demonstrate that we are still home to creativity and cutting-edge technologies. The DAGSI and AFIT partnership has a decade-long track record of benefiting the Air Force and the state of Ohio. It is in the best interest of all of us that we continue to foster the success of this partnership now and for years to come.

Thank you for the opportunity to speak before you today. I would be happy to take any questions you may have at this time.

Mr. TURNER. Thank you, Representative DeWine.

Dr. Curran, I also want to thank you for taking your time to be here today, especially on a Saturday. I want to thank you for your leadership in continuing the history of the University of Dayton looking beyond its campus.

Dr. CURRAN. Thank you.

Mr. TURNER. Your university has a long history of taking responsibility for ways to contribute to the community. Certainly your partnership in looking at ways to develop the NCR property around you is a great example of that, the redevelopment along Brown Street, the neighborhood redevelopment and revitalization that has occurred around Miami Hospital and, of course, DAGSI and your UDRI here at Wright-Patterson Air Force Base. We appreciate you being here and hearing about your participation in this.

STATEMENT OF DR. CURRAN

Dr. CURRAN. Thank you. Mr. Chairman, Representative Schmidt, I would like to thank you for the opportunity to address you this morning. My name is Dan Curran and I am the President of the University of Dayton. The University of Dayton is a Catholic University founded in 1850 by the Marianist religious order and, at over 10,000 students, it is the largest private university in the State of Ohio.

The university has a well-earned reputation for academic excellence and a national reputation for high-caliber research. It is these two traits that I would like to discuss with you here today, specifically, in terms of how the University has leveraged these sources of pride, as well as educational partnerships, to meet the needs of the Wright-Patterson Air Force Base, the U.S. Air Force, and ultimately our Nation's defense.

To speak to the matter before us today, the University is a proud partner with AFIT. Through the recent BRAC processes, the significance of having an institution like AFIT in our midst became clear to the entire Dayton region. through making the case to keep AFIT at Wright-Patterson Air Force Base, Federal, State, and local leaders realized that there were numerous educational opportunities to not only strengthen AFIT, but to enhance the learning opportunities for students drawn to the Dayton Region from all over the country and, in fact, across the world.

The Dayton Area Graduate Studies Institute, DAGSI, plays a central role. DAGSI is a consortium of graduate education schools including AFIT, University of Dayton, and Wright State. Ohio State and the University of Cincinnati are affiliate members while Miami and Ohio University are associate members.

Dr. Downie, the Director of DAGSI, can best answer the questions you have on membership levels.

The University's educational partnership with AFIT through DAGSI builds on a long and beneficial partnership with the Air Force that has taken place since the late 1940's. In 1956, 7 years after UD secured the first Wright-Patterson Air Force Base contract to translate aircraft flight-load data, the University of Dayton Research Institute, commonly referred to as UDRI, was born.

Since then the UDRI has become a globally recognized leader in research and development of technologies which have not only ad-

vanced science but benefited mankind. The UDRI performs approximately $70 million in research annually and is ranked second nationally in materials research according to the National Science Foundation.

UDRI remains headquartered at the University of Dayton but has significant operations at Wright-Patterson Air Force Base where we have about 140 employees; Robins Air Force Base, Arlington, Virginia; and Washington, DC, as well as Utah. I would like to take the opportunity to add that the UDRI will celebrate its 50th anniversary on August 23rd.

Through UDRI and the UD School of Engineering the University has been involved in a number of research areas critical not only to the Nation's defense, but the development of new technologies that can have significant commercialization opportunities. Some of these areas include nanotechnology, alternative fuels, advanced materials, computational aerodynamics, systems analysis, electro-optics, non-destructive inspection, and aging systems sustainment.

I think the key to our relationship is what it brings to students. Currently the UDRI employs about 250 students, 40 percent undergraduate, 60 percent graduate. Dozens of these students are located on the base. The ability to have UD students and DAGSI students to do world-class Air Force research is really the key to building a high-caliber group of employees in the future.

The presence of student researchers on the base and working on Air Force initiatives resulted in a number of graduates taking Federal jobs and also jobs with defense contractors in the area. Such students have experience with Federal Government, work backgrounds specifically related to the research at hand, and often have the necessary clearances to start working immediately.

Wright-Patterson Air Force Base has been a critical component for UD, as well as other members of DAGSI, in developing the engineers and scientists to ensure America's international leadership in science and technology, as well as to ensure ever-increasing experts in complicated defense areas.

The University looks forward to being a partner in the relocation of the Air Force's aerospace medicine operations. Through partnerships built on and around DAGSI's success, as well as local universities' longstanding experience in the areas of medicine, nursing, and human factors and effectiveness, we can mirror the successes we have seen in other areas in the aerospace medicine area.

In closing, I would like to thank the Ohio delegation, in particular Representatives Turner and Hobson, for all the things that they have done for the research labs, AFIT, and the base over the years. Your help has been invaluable, especially last year during the BRAC process. Once again, I thank you and I look forward to any questions you have.

[The prepared statement of Dr. Curran follows:]

The Remarks of Daniel J Curran, Ph.D., President of the University of Dayton

A Hearing of the Government Reform Subcommittee on Federalism and the Census

The Air Force Institute of Technology:
An Intergovernmental Model for Today's Military Education

July 29, 2006 at the National Air Force Museum at Wright-Patterson Air Force Base

Mr. Chairman, Members of the Government Reform Subcommittee on Federalism and the Census, and honored guests, I would like to thank you for the opportunity to address you this morning. I would especially like to extend a warm welcome to our guests from Michigan (Representatives Candace Miller and Thaddeus McCotter) and our guest from Kentucky (Representative Jeff Davis).

My name is Daniel Curran and I am the President of the University of Dayton. The University of Dayton is a Catholic University founded in 1850 by the Marianist religious order and, at over 10,000 students, is the largest private university in the State of Ohio. The university has a well-earned reputation for academic excellence and a national reputation for high-caliber research. It is these two traits that I would like to discuss with you here today, specifically, in terms of how the University has *leveraged* these sources of pride, as well as educational partnerships, to meet the needs of the Wright-Patterson Air Force Base, the United States Air Force, and ultimately, the defense of our nation.

To speak to the matter before us today, the University is a proud partner with the Air Force Institute of Technology (AFIT). Through recent BRAC processes, the significance of having an institution like AFIT in our midst became clear to the entire Dayton region. Through making the case to keep AFIT at WPAFB, federal, state, and local leaders realized that there were numerous educational opportunities to not only strengthen AFIT, but to enhance the learning opportunities for students drawn to the Dayton Region from all over the country, in fact, the world. From this, the Dayton Area Graduate Studies Institute (DAGSI) was born and nurtured.

DAGSI is a consortium of graduate engineering schools including AFIT, UD, and Wright State. The Ohio State University and the University of Cincinnati are affiliate members, while Miami University and Ohio University are associate members. Liz Downie, the Director of DAGSI, can best answer any questions you may have on the levels of membership.

The University of Dayton's educational partnership with AFIT, through DAGSI, builds on long and beneficial partnerships with the Air Force that have been in place since the late 1940s. In 1956, seven years after UD secured its first research WPAFB contract to translate aircraft flight-loads data, the University of Dayton Research Institute – commonly referred to as "UDRI" – was born. Since then, UDRI has become a globally recognized leader in research and development of technologies which have not only advanced science but benefited mankind. *UDRI performs approximately $70 million in research annually and is ranked #2 nationally in materials research according to the National Science Foundation.* UDRI remains headquartered on UD's campus and has significant operations at WPAFB (about 140 employees); Robins Air Force Base at Warner Robins, Ga.; Arlington, Va.; Washington, D.C. and Ogden, Utah. I would take this opportunity to add that we in the Dayton Region will take time to celebrate the 50th anniversary of the University of Dayton Research Institute on August 23rd.

Through UDRI and the UD School of Engineering, the University is involved in a number of research areas critical not only to the nation's defense, but the development of technologies that can have significant commercialization opportunities. Some of the areas include:

- Nanotechnology
- Alternative Fuels
- Advanced Materials
- Computational Aerodynamics
- Systems Analysis
- Electro-Optics
- Non-Destructive Inspection
- Aging Systems Sustainment

With operations located at WPAFB, UDRI has been able to work closely with Air Force researchers to respond to the needs of the nation's defense.

The University of Dayton's commitment to research is in synergy with our commitment to student education. Much of the research performed by UDRI is accomplished with a strong presence of student researchers. As of late, the University has had approximately 250 student researchers employed at UDRI annually (40% undergraduate / 60% graduate). Of these students, several dozen are located at WPAFB. The ability for UD and DAGSI students to do world-class Air Force research in the defense of their country – combined with the high caliber students from DAGSI's leading institutions – is a win-win situation for both organizations, not to mention our nation.

The University of Dayton enjoys great working relationships with AFIT and Wright State through DAGSI. The opportunity to share educational activities and resources with AFIT has led to joint research programs in the aforementioned areas between UD and AFIT. These programs often incorporate the best researchers from UD, AFIT and AFRL in discovering and developing new technology needed by the Air Force. AFIT's contributions to both the educational and research activities are very much valued by the University of Dayton.

The presence of student researchers on the base and working on Air Force initiatives on campus has resulted in a number of *graduates taking jobs in the federal government and with defense contractors in the area.* Such students have work experience with the federal government, work backgrounds specifically related to the research at hand, and often have the necessary clearances to start working immediately. WPAFB has been a critical component for UD, as well as the other members of DAGSI, in developing the engineers and scientists to ensure America's international leadership in science and technology, as well as to ensure the ever increasingly complicated defense of our nation.

The University looks forward to being a partner in the relocation of the Air Force's aerospace medicine operations. Through partnerships built on and around the success of DAGSI, as well as local universities' longstanding experience in the areas of medicine, nursing, and human

factors & effectiveness, we can mirror the successes we have seen in areas such as materials, fuels, and systems analysis – all to the nation's benefit.

In closing

Representatives Turner and Hobson, I would like to thank you for your support for AF Research Labs, AFIT, and WPAFB's military and civilian public servants. Your help was invaluable during last year's BRAC process that saw many gains for the area. Your leadership in Congress to promote legislation and policies that help strengthen our national defense through the resources available at WPAFB is greatly appreciated. With that I will conclude my remarks and will be available to answer questions.

Thank you.

Mr. TURNER. Thank you.

Dr. Thomas, obviously our focus is on AFIT and the support of Wright-Patterson Air Force Base but inherent in all the testimony we have from Representative DeWine and Dr. Curran and yourself is the impact that your focus has on the economy of our community. Prior to your testimony I just wanted to highlight an example of the way that is all interrelated.

My sister while attending Wright State University in the graduate masters degree program in biology worked for UDRI in the labs here at the Air Force Base in the composite area ultimately graduating from Wright State with her masters in biology and then continuing to work with UDRI in the labs and working on research and development with respect to the structure of insects and what might be learned from material structures and how that might be applied to airplanes.

As Dr. Curran was saying, one of the most important things that you do, and that I appreciate also for Wright State University and the University of Dayton, is the ability for investment in people and the knowledge base that occurs for our community.

I want to thank you for your dedication to that and it certainly is inherent in your testimony of the fact that in the end although we are talking of supporting Wright-Patterson Air Force Base and the ways that we can have ingenuity, we also are talking about changing people's lives and their abilities and their educational stature. I want to congratulate you and Wright State on your efforts in that.

STATEMENT OF DR. THOMAS

Dr. THOMAS. Thank you, Mr. Chairman and good morning, Mr. Chairman and also Member Schmidt. That is a wonderful example. I will have to capture that for the future.

My name is Jay Thomas. I am the Vice President for Research and Dean of the Graduate School at Wright State. I am very pleased to have this opportunity to testify about Wright State, its interactions with AFIT, and its participation in the Dayton Area Graduate Studies Institute.

Next year in 2007 Wright State will celebrate 40 years of service to the Dayton region, the State of Ohio, and the Nation. Wright State has grown up with Wright-Patterson Air Force Base as a supportive neighbor, influencing program development, partnering in research, and hiring our graduates. Particularly close ties have developed with AFIT and the Air Force Research Laboratory.

In engineering and computer science these ties have been facilitated and strengthened by the development, beginning in 1994, of the Dayton Area Graduate Studies Institute.

Wright State's College of Engineering and Computer Science offers undergraduate and graduate programs keyed to Air Force needs. Program such as electrical and mechanical engineering featuring research emphasis such as target recognition and design optimization which have received continuous Air Force funding and benefited from those close working relationships between Wright State faculty members and Air Force staff.

Wright State has offered one of the few programs in the country in Human Factors engineering, a program targeting human-ma-

chine systems including aircraft pilot performance. Wright State also has programs in its School of Medicine and College of Science and Mathematics such as environmental toxicology and cognitive science that interact strongly with the AFRL. Wright State owns and operates a virtual environment CAVE which is housed in the AFRL Human Effectiveness directorate.

You have heard about DAGSI from President Curran. We'll learn more from Dr. Downie in the follow testimony. Among the three of us I am the only one who has been in my position since pre-DAGSI times—too long—so I can comment on some of the history.

In 1993 the Deans of Engineering at Wright State, the University of Dayton, and AFIT were called together by Dayton region industry leaders and urged to cooperate rather than compete, and to develop world class programs. We have worked to do so. AFIT has always offered unique programs keyed to Air Force needs.

Since the 1993 time period, the University of Dayton has become a national leader in Materials research and Wright State has developed leading programs in computer science and related computational design. These complement each other as well as AFIT programs providing the region a breadth of programs of recognized excellence.

At the same time that regional leaders were encouraging cooperation, the Ohio Board of Regents, the State agency that coordinates higher education, embarked upon several initiatives to promote program excellence and collaboration. The OBR realized that carrots were better than sticks to achieve such goals and had demonstrated a willingness to fund such initiatives.

With this background, the three engineering deans began to meet regularly, in fact every week for more than a year, to develop DAGSI. They learned that collaboration is hard work, must be built on a foundation of trust, and must be win-win for all involved. Through this process, Wright State, and the University of Dayton, became much better acquainted with AFIT.

Wright State very much values its interactions with AFIT. These take many forms. Through DAGSI engineering students at either school can take sources at the other, courses that would not be available at their home institution. For doctoral programs, there is a practice of including an external DAGSI faculty member on each doctoral student's dissertation committee.

AFIT faculty members bring unique knowledge and perspectives to these activities which greatly benefits the student. Such sharing of faculty expertise also promotes quality of the research and the overall doctoral experience. At the same time, the interaction of faculty members around a specific research topic enables collaboration on future research projects.

These programmatic features are of mutual benefit to Wright State and AFIT. For AFIT, State and regional resources leverage AFIT's Federal funding and bring an extra measure of excellence to AFIT programs.

It has been demonstrated that DAGSI is an effective organization in bringing Ohio University resources together to leverage Federal resources at Wright-Patterson Air Force Base. DAGSI has provided student support, research funding, educational enrich-

ment such as course sharing, and numerous collaborative programs.

An opportunity over the next several years is the expansion of aerospace medicine at Wright-Patterson Air Force Base as mandated by the recent BRAC Commission along with the establishment of the Institute of Aerospace Medicine to include the Air Force School of Aerospace Medicine.

Wright State University offers the oldest civilian Master of Science in Aerospace Medicine in the United States as well as the Master of Public Health and numerous biomedical science graduate programs. Wright State University is well positioned to lead an expansion of DAGSI to meet the education and training needs of the expanding aerospace medicine work force at Wright-Patterson Air Force Base.

Thank you very much and I look forward to answering any questions you might have.

[The prepared statement of Dr. Thomas follows:]

TESTIMONY OF DR. JAY THOMAS
VICE PRESIDENT FOR RESEARCH AND DEAN,
SCHOOL OF GRADUATE STUDIES
WRIGHT STATE UNIVERSITY
BEFORE THE SUBCOMMITTEE ON FEDERALISM AND THE CENSUS
COMMITTEE ON GOVERNMENT REFORM
UNITED STATES HOUSE OF REPRESENTATIVES

"THE AIR FORCE INSTITUTE OF TECHNOLOGY: AN INTERGOVERNMENTAL MODEL FOR TODAY'S MILITARY EDUCATION"

JULY 29, 2006

INTRODUCTION

Good morning, Mr. Chairman and members of the Subcommittee. My name is Jay Thomas. I am the Vice President for Research and Dean of the Graduate School at Wright State University. I am pleased to have this opportunity to testify about Wright State University, its interactions with AFIT, and its participation in the Dayton Area Graduate Studies Institute.

WRIGHT STATE UNIVERSITY

Next year, 2007, Wright State University will celebrate forty years of service to the Dayton region, the State of Ohio, and the nation. Wright State has grown up with Wright-Patterson AFB as a supportive neighbor, influencing program development, partnering in research, and hiring our graduates. Particularly close ties have developed with AFIT and the Air Force Research Laboratory. In

engineering and computer science, these ties have been facilitated and strengthened by the development, beginning in 1994, of the Dayton Area Graduate Studies Institute.

Wright State's College of Engineering and Computer Science offers undergraduate and graduate programs keyed to Air Force needs. Traditional programs such as electrical and mechanical engineering feature research emphases such as target recognition and design optimization which have received continuous Air Force funding and benefited from close working relationships between Wright State faculty members and Air Force staff. Wright State has offered one of the few programs in the country in Human Factors engineering, a program targeting human-machine systems including aircraft pilot performance. Wright State also has programs in its School of Medicine and College of Science and Mathematics such as environmental toxicology and cognitive science that interact strongly with the AFRL. Wright State owns and operates a virtual environment CAVE which is housed in the AFRL Human Effectiveness directorate.

ROLL OF DAGSI

You have heard about DAGSI from President Curran and will learn more from Dr. Downie in the following testimony. Among the three of us, I am the only one that has been in my position since pre-DAGSI times, so I can comment on some of the history.

In 1993, the deans of engineering of Wright State, the University of Dayton, and AFIT were called together by Dayton region industry leaders and urged to cooperate rather than compete, and to develop world class programs. We have worked to do so. AFIT has always offered unique programs keyed to Air Force needs. Since the 1993 time period, the University of Dayton has become a national leader in materials research and Wright State has developed leading programs in computer science and related computational design. These complement each other as well as AFIT programs providing the region a breadth of programs of recognized excellence.

At the same time that regional leaders were encouraging cooperation, the Ohio Board of Regents, the state agency that coordinates higher education, embarked upon several initiatives to promote program excellence and collaboration. The OBR realized that carrots were better than sticks to achieve such goals and had demonstrated a willingness to fund such initiatives. With this background, the three engineering deans began to meet regularly, in fact every week for more than a year, to develop DAGSI. They learned that collaboration is hard work, must be built on a foundation of trust, and must be win-win for all involved. Through this process, Wright State, and the University of Dayton, became much better acquainted with AFIT.

WORKING WITH AFIT

Wright State very much values its interactions with AFIT. These take many forms. Through DAGSI, engineering students at either school can take courses at the other, courses that would not be available at their home institution. For doctoral programs, there is a practice of including an external DAGSI faculty member on each doctoral student's dissertation committee. AFIT faculty members bring unique knowledge and perspectives to these committees which greatly benefits the student. Such sharing of faculty expertise also promotes quality of the research and the overall doctoral experience. At the same time, the interaction of faculty members around a specific research topic enables collaboration on future research projects.

These programmatic features are of mutual benefit to Wright State and AFIT. For AFIT, state and regional resources leverage AFIT's federal funding and bring an extra measure of excellence to AFIT programs.

Several years after DAGSI was established, AFIT was threatened with closure. This was a clear threat to the economy of the region. Both AFIT staff and students can be considered to hold high-value jobs. Furthermore, many AFIT students perform research in AFRL laboratories and are therefore considered to act as a 'glue' which holds AFRL units to the Wright site protecting those assets for the region. The Dayton region responded aggressively with a plan to

'privatize' AFIT. The State of Ohio stepped forward to budget $4 million to provide a state subsidy for the operation of this 'new AFIT.'

Of course, in the end the AFIT budget was restored and it did not close. Meanwhile, the $4 million remained in the Ohio budget. So DAGSI, through its members, proposed that the $4 million be used for a collaborative research program which would bring Ohio faculty and students to Wright Patterson AFB to conduct research on topics proposed by the AFRL directorates. This was approved and allowed DAGSI to enter the research arena. A successor program continues today, though at a reduced budget and scope. Dr. Downie will provide some additional detail on these programs in her testimony.

FUTURE OPPORTUNITIES

It has been demonstrated that DAGSI is an effective organization in bringing Ohio university resources together to leverage federal resources at Wright Patterson AFB. DAGSI has provided student support, research funding, educational enrichment such as course sharing, and numerous collaborative programs. An opportunity over the next several years is the expansion of aerospace medicine at Wright Patterson AFB as mandated by the recent BRAC Commission along with the establishment of the Institute of Aerospace Medicine (IAM) to include the Air Force School of Aerospace Medicine. Wright State University offers the oldest civilian Master of Science in Aerospace Medicine in the US as well as the Master of Public Health and numerous biomedical science

graduate programs. Wright State University is well positioned to lead an expansion of DAGSI to meet the education and training needs of the expanding aerospace medicine workforce at Wright Patterson AFB.

Mr. TURNER. Thank you, Dr. Thomas.

Dr. Downie, I appreciate in your testimony that you have given us some great facts and figures on the process and how it works and its impact. Also you have a great coordinating job to do so we look forward to hearing about DAGSI and your work with it.

STATEMENT OF DR. DOWNIE

Dr. DOWNIE. Thank you. Good morning, Mr. Chairman and Congresswoman Schmidt. My name is Elizabeth Downie. I am the Director of the Dayton Area Graduate Studies Institute, which you have heard a lot about already this morning, and I am here to testify about the DAGSI consortium and AFIT's role and impact as a partner of the consortium.

I appreciate the opportunity to speak before you today.

DAGSI is a not-for-profit consortium of graduate engineering and computer science schools at UD, Wright State, and AFIT. The consortium is unique in that it unites a private institution, a stated-assisted institution, and a Federal institution in a successful partnership that has enhanced the educational and research base as well as the technical work force in the region.

Our impact is not limited to Dayton, however. The University of Cincinnati, the Ohio State University, Miami University, and Ohio University are affiliated with DAGSI and our major research program, which supports AFRL, is open to any Ohio research university. DAGSI's mission is to promote education-based economic development in Ohio through the development and support of world-class graduate engineering and computer science education and research programs.

DAGSI has been funded by the State of Ohio, through the Board of Regents, since 1995. DAGSI's funding supports student and faculty research in technologies aligned with several initiatives critical to the future of Ohio and its economy. We have two major program areas: First, we offer competitive, merit-based scholarships and fellowships to Masters and Doctoral students in engineering and computer science at UD, Wright State, and AFIT. We support part-time as well as full-time students, which means that employers in the region can leverage their education and training dollars by having their engineers pursue a graduate degree through DAGSI.

Most of our students are Ohio residents when they apply for a scholarship, but due to growing awareness of DAGSI out there we also are drawing students from across the Nation, particularly through our fellowship program. Typically we support close to 200 students annually.

Second, we sponsor a joint research program between DAGSI and the Air Force Research Laboratory at Wright-Patterson AFB. Each year, AFRL provides DAGSI with research topics, and students and faculty from any Ohio research university may submit proposals for research on these topics. Students who are awarded a research fellowship are required to work on base in the AFRL labs; therefore, they must be U.S. citizens. Currently we have 40 active projects in this program.

DAGSI's key objectives are: To train and retain advanced engineering students in the State of Ohio, with the goal of creating a

critical mass of talent in targeted technologies; to fund graduate students who study and undertake research in areas critical to Ohio's future; and to work collaboratively with research institutes, private and government laboratories, corporations, and others seeking to build Ohio's capabilities in key technology focus areas.

Let's look at several aspects of DAGSI and its programs in terms of the value brought by the consortium to various stakeholders. In particular, I will focus on AFIT's participation in the consortium as well as the impact of DAGSI on the Air Force to illustrate the successes of the program.

One, through DAGSI and our Cooperative Research and Development Agreement [CRADA] with AFIT, civilian students now can enroll at AFIT. Over the years, 37 percent of DAGSI students at AFIT have been nongovernment students. These students, who would be in school elsewhere if not for DAGSI, do research that ultimately supports the warfighter. In DAGSI's elite Fellowship program, AFIT has attracted an impressive 10 of the 26 students enrolled to date. They make that decision based on their visit to AFIT. All civilian students with exceptional academic and research credentials who have chosen to pursue their doctoral studies at AFIT and contribute to the warfighter.

Two, through DAGSI, engineering or computer graduate students enrolled at AFIT, UD, or Wright State can cross-register for classes at the other partner schools. This capability broadens and enriches the students' programs of studies and builds in collaboration. Many AFIT students have taken classes at the other schools and many students at the other schools have taken courses at AFIT as long as they are U.S. citizens. Also, AFIT faculty have served as dissertation committee members for UD and Wright State students, and likewise AFIT students have had committee members from the other schools.

Here is what one student, now an aerospace engineer employed by the Air Force, has to say about opportunities arising from consortium collaboration: "DAGSI's relationship allowing the three Dayton-area graduate schools to cross-enroll has been the only way I would have been able to complete my degree in my field, because none of the three schools alone offered classes necessary for my major. With DAGSI's help, I've been able to craft a program that is unique but valuable to my employer, the USAF."

Three, 26 percent of DAGSI's scholarship awards have gone to students connected with the Air Force when they start their graduate program and employed by the Air Force when they graduate. Most are at Wright-Patt so DAGSI has had a tremendous impact on Ohio's largest single-site employer.

Four, nearly two-thirds of DAGSI graduates are employed in Ohio, contributing to the economy with their technology knowledge and skills. Close to 40 percent of these are employed at Wright-Patt or by defense contractors in the region.

Five, DAGSI has sponsored 93 projects in the AFRL/DAGSI research program since the program's inception 7 years ago. In addition to the seven DAGSI members and affiliates, several other Ohio universities, Case Western, Kent, Toledo, and Akron, have had teams funded through this program. AFIT faculty and students col-

laborated in 35 of these projects—that's 38 percent of the total—14 as the lead institution and 21 as a partner.

Clearly, AFIT has been a vital contributor to university research collaborations across the State of Ohio. This program not only has benefited AFRL by effectively expanding the lab's research base and tying it to the university community in Ohio, it has fostered collaboration among individual faculty members from different institutions.

Many of these collaborations have continued after getting their start in our program, with follow-on funding obtained from the Air Force and other government agencies. Faculty early in their careers at AFIT as well as the other schools have been able to build a research base with colleagues in the region, leading to a positive impact on tenure decisions.

In closing, DAGSI is a model of collaboration that we believe others can look to for replication. Through the success and contributions of our graduates, DAGSI's impact reaches far beyond the universities themselves. Thank you for providing this opportunity to give you my perspective on DAGSI and AFIT's role as an integral, vital member of the partnership.

[The prepared statement of Dr. Downie follows:]

TESTIMONY OF DR. ELIZABETH DOWNIE
DIRECTOR, DAYTON AREA GRADUATE STUDIES INSTITUTE
BEFORE THE SUBCOMMITTEE ON FEDERALISM AND THE CENSUS
COMMITTEE ON GOVERNMENT REFORM
UNITED STATES HOUSE OF REPRESENTATIVES

"THE AIR FORCE INSTITUTE OF TECHNOLOGY: AN INTERGOVERNMENTAL MODEL FOR TODAY'S MILITARY EDUCATION"

JULY 29, 2006

INTRODUCTION

Good morning, Mr. Chairman and members of the Subcommittee. My name is Elizabeth Downie. I am the Director of the Dayton Area Graduate Studies Institute, or DAGSI, and I am here to testify about the DAGSI consortium and AFIT's role and impact as a partner of the consortium. I appreciate the opportunity to speak before you today.

OVERVIEW

The Dayton Area Graduate Studies Institute (DAGSI) is a not-for-profit consortium of graduate engineering and computer science schools at the University of Dayton, Wright State University, and the Air Force Institute of Technology. The consortium is unique in that it unites a private institution, a state-assisted institution, and a federal institution in a successful partnership that has enhanced the educational and research base as well as the technical

workforce in the region. Our impact is not limited to Dayton, however. The University of Cincinnati, The Ohio State University, Miami University, and Ohio University are affiliated with DAGSI, and our major research program, which supports the Air Force Research Laboratory, is open to any Ohio research university. DAGSI's mission is to promote education-based economic development in Ohio through the development and support of world-class graduate engineering and computer science education and research programs.

DAGSI has been funded by the state of Ohio, through the Board of Regents, since 1995. DAGSI's funding supports student and faculty research in technologies aligned with several initiatives critical to the future of Ohio and its economy. We have two major program areas:

- First, we offer competitive, merit-based scholarships and fellowships to Masters and Doctoral students in engineering and computer science at UD, Wright State, and AFIT. We support part-time as well as full-time students, which means that employers in the region can leverage their education and training dollars by having their engineers pursue a graduate degree through DAGSI. Most of our students are Ohio residents when they apply for a scholarship, but we also are drawing students from across the nation, particularly through our Fellowship program. Typically we support close to 200 students annually.
- Second, we sponsor a joint research program between DAGSI and the Air Force Research Laboratory (AFRL) at Wright-Patterson AFB. Each year,

AFRL provides DAGSI with research topics, and students and faculty from any Ohio research university may submit proposals for research on these topics. Students who are awarded a research fellowship are required to work on base in the AFRL labs; therefore, they must be US citizens. Currently we have 40 active projects in this program.

DAGSI's key objectives are:

- To train and retain advanced engineering students in the state of Ohio, with the goal of creating a critical mass of talent in targeted technologies
- To fund graduate students who study and undertake research in areas critical to Ohio's future
- To work collaboratively with research institutes, private and government laboratories, corporations, and others seeking to build Ohio's capabilities in key technology focus areas

THE VALUE OF DAGSI

Let's look at several aspects of DAGSI and its programs in terms of the value brought by the consortium to various stakeholders. In particular, I will focus on AFIT's participation in the consortium as well as the impact of DAGSI on the Air Force to illustrate the successes of the program.

1. Through DAGSI and our Cooperative Research and Development Agreement (CRADA) with AFIT, civilian students now can enroll at AFIT. Over the years, 37% of DAGSI students at AFIT have been non-

government students. These students, who would be in school elsewhere if not for DAGSI, do research that ultimately supports the warfighter. In DAGSI's elite Fellowship program, AFIT has attracted an impressive 10 of the 26 students enrolled to date—all civilian students with exceptional academic and research credentials who have chosen to pursue their doctoral studies at AFIT and contribute to the warfighter.

2. Through DAGSI, engineering or computer graduate students enrolled at AFIT, UD, or Wright State can cross-register for classes at the other partner schools. This capability broadens and enriches the students' programs of studies and builds in collaboration. It also affords opportunities to streamline course offerings to minimize repetition among the three schools. Many AFIT students have taken classes at UD and Wright state over the years, and many UD and Wright State students—those who are US citizens—have taken classes at AFIT. Also, AFIT faculty have served as dissertation committee members for UD and Wright State students, and likewise AFIT students have had committee members from the other schools.

Here is what one student, now an aerospace engineer employed by the Air Force, has to say about opportunities arising from consortium collaboration: "DAGSI's relationship allowing the three Dayton-area graduate schools to cross-enroll has been the only way I would have been able to complete my degree in my field, because none of the three schools

alone offered classes necessary for my major. With DAGSI's help, I've been able to craft a program that is unique but valuable to my employer, the USAF."

3. Twenty-six percent of DAGSI's scholarship awards have gone to students connected with the Air Force when they start their graduate program and employed by the Air Force when they graduate. Most are at Wright-Patt, so DAGSI has had a tremendous impact on the educational programs at Ohio's largest single-site employer.
4. Nearly two-thirds of DAGSI graduates are employed in Ohio, contributing to the economy with their technology knowledge and skills. Close to 40% of these are employed at Wright-Patt or by defense contractors in the region.
5. DAGSI has sponsored 93 projects in the AFRL/DAGSI research program since the program's inception 7 years ago. In addition to the seven DAGSI members and affiliates, several other Ohio universities--Case Western, Kent, Toledo, and Akron--have had teams funded through this program. AFIT faculty and students collaborated in 35 of these projects (that's 38% of the total), 14 as the lead institution and 21 as a partner. Clearly AFIT has been a vital contributor to university research collaborations across the state of Ohio. This program not only has benefited AFRL by effectively expanding the lab's research base and tying it to the university community in Ohio, it has fostered collaboration among individual faculty members from different institutions. Many of these

collaborations have continued after getting their start in our program, with follow-on funding obtained from the Air Force and other government agencies. Faculty early in their careers at AFIT as well as the other schools have been able to build a research base with colleagues in the region, leading to a positive impact on tenure decisions.

CLOSING

DAGSI is a model of collaboration that we believe others can look to for replication. Through the success and contributions of our graduates, DAGSI's impact reaches far beyond the universities themselves. Thank you for providing this opportunity to give you my perspective on DAGSI and AFIT's role as an integral, vital member of the partnership.

DAYTON AREA GRADUATE STUDIES INSTITUTE (DAGSI) IMPACT ON OHIO'S ECONOMY

DAGSI is a consortium of graduate engineering and computer science schools at the University of Dayton, a private institution; Wright State University, a state-assisted institution; and the Air Force Institute of Technology, a federal institution. DAGSI integrates and leverages the combined resources of the partnership, including faculty, facilities, equipment, and other assets of the institutions. The DAGSI partnership, which includes The Ohio State University and the University of Cincinnati as affiliate members and Miami University as an associate member, effectively expands regional educational and research opportunities at the masters and doctoral levels of engineering and computer science. **DAGSI's ultimate objective is to support economic growth and development in Ohio by strengthening the intellectual infrastructure supporting the state's high-tech workforce.**

Third Frontier initiatives, the Wright Brothers Institute, and the workforce needs of Ohio industry, including Wright-Patterson AFB, all demand strength in graduate engineering and computer science education. DAGSI should be funded at a level that allows our educational, government, and industry partners to develop the talent pipeline critical to the future of Ohio.

DAGSI SCHOLARSHIP PROGRAM

REGENTS LINE 235-553

IMPACT: WORKFORCE DEVELOPMENT FOR OHIO

- Over 500 DAGSI students have graduated with advanced degrees in engineering and computer science since 1996
- Close to two-thirds of the graduates remain in Ohio for employment
- DAGSI graduates work for Delphi, Lexis Nexis, Riverside Research, UDRI, UES, Anteon, and many other Ohio companies
- At least 4 DAGSI graduates have started their own companies – in Ohio
- 26% of DAGSI graduates work for Air Force organizations connected with Wright-Patterson AFB
  "DAGSI is a tool for recruiting students. We have several who have come (to AFRL) because of the combination of DAGSI scholarships, the benefit of choosing classes between member institutions, and doing quality research with us." Bill Brown, Chief Scientist, SN Directorate, AFRL
- 75% of DAGSI graduates have degrees and experience directly relevant to Third Frontier technologies: bioscience; information technology; power and propulsion; advanced materials; instruments, controls, electronics

THE JOINT AFRL/DAGSI RESEARCH PROGRAM
REGENTS LINE 235-508

IMPACT: WORKFORCE DEVELOPMENT

New talent and skills for high-tech jobs in Ohio:
- At least 17 MS and PhD graduates involved with the program now work for AFRL
- At least 8 graduates now work for Air Force contractors
- Other students employed by Battelle, Systran, Sverdrup, GE, and others

IMPACT: RETURN ON INVESTMENT

Positive ROI:
- More than $18 million in follow-on funding to date; is new money to the state of Ohio
- Total project value of $32 million far exceeds the investment by the state of Ohio

IMPACT: KNOWLEDGE DEVELOPMENT

Progress critical to Air Force and the warfighter:
- Program provided AFRL the opportunity to leverage resources and move forward aggressively with fundamental research
- At least 12 projects have received follow-on funding from the Air Force
- Strategic center of excellence established: AFRL/VA-AFOSR Collaborative Center for Control Science, headquartered at OSU
  - *"If it hadn't been for the team's start under the DAGSI program, the award for this center very likely would have gone to Michigan rather than to OSU." Don Paul, Chief Scientist, Air Vehicles Directorate*
  - *"Center for Control Science with Ohio State is a model for activities of this kind." AFRL Scientific Advisory Board Review, VA Directorate, 11/03*
- Collaborations established among teams representing 10 Ohio universities, AFRL scientists and engineers, and several Ohio companies. Over 300 faculty and student publications and presentations to date; more than 150 graduate theses completed or in process

Air Force Institute of Technology (AFIT)

- DAGSI was instrumental in turning around the Air Force decision to close AFIT, resulting in significant economic impact to southwest Ohio.

- Loss of AFIT would have meant a loss of $100 million to the Dayton region in 2004 and greater potential loss in the future ($150 million in lost wages by FY07)

Event: Air Force proposes closing AFIT (12/96)

- Negative economic impact (military and civilian): approx. $62 million/year
  - 350 faculty and staff positions lost ($30 million/year)
  - 400 officer students lost ($32 million/year)

Response: DAGSI members and community leaders develop plan (1/97)

- Proposal submitted to Air Force for DAGSI consortium to manage AFIT
- Air Force delayed closure and agreed to consider proposal

Result: Year-long reassessment convinces Air Force to maintain AFIT as an Air Force organization (1998)

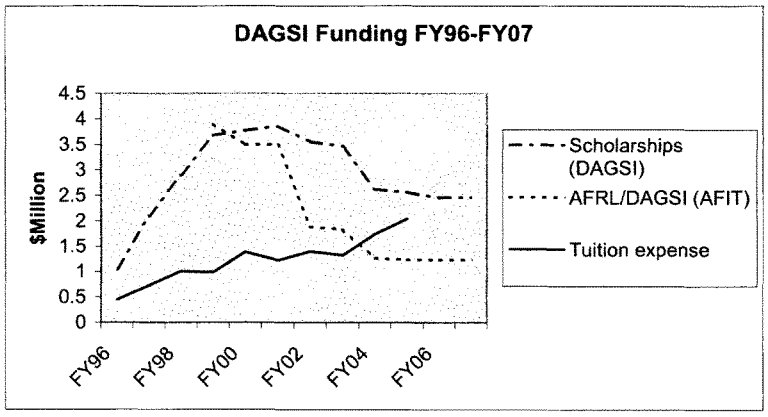
NOW: AFIT is vibrant and growing

- Over 400 faculty and staff positions ($42 million/year)
- Over 700 full-time officer students ($56 million/year)

FUTURE: By FY07, AFIT plans to have over 500 faculty and staff positions ($50 million/year) and about 1200 full time students ($96 million/year)

DAGSI'S FUNDING CHALLENGE

Total DAGSI program funding for FY07 is 50% of what it was in FY01. Tuition has risen at an average rate of 8% per year. DAGSI faces a major cutback in programs by FY08 unless funding from the state increases significantly or other sources of funding are identified.



Mr. TURNER. Thank you, Dr. Downie.

I realize that we are benefiting from the patience from all the panel members that we had to move this hearing to a later time and you have personal schedules so I want to thank you for your patience and your cooperation.

I have made a commitment to Dr. Downie because of her schedule that we would ask Dr. Downie questions first and allow her to excuse herself with Dr. Curran and Dr. Thomas filling in for coordinating questions that we might have after its operations. We will begin first with questions to Dr. Downie from Congresswoman Schmidt and then I will ask my questions for Dr. Downie and then you can be excused. Gentlemen, if you don't mind, we will then turn to you for questions.

Ms. SCHMIDT. Thank you, and thank you for some very compelling testimony. I have a couple of question for you, Dr. Downie. Does DAGSI plan to expand the consortium and are there plans to integrate DAGSI associate and affiliate member schools into the course sharing program?

Dr. DOWNIE. Well, we have no immediate plans to expand. I think, first of all, through the AFRL DAGSI program we already do have an impact across the State through participation by several other universities beyond those in this region. I think if one divorces the course-sharing capability from the awarding of scholarships, we are certainly open if there is a demand to sharing courses, cross-registration, among all our members and beyond.

Logistics is the obvious hurdle so there really hasn't been a tremendous demand for Ohio State students, UC students, to take courses here and vice versa. We are certainly open to it and if there is a telling reason, a demand out there, especially perhaps as distance learning opportunities spring up, we would certainly be open to setting up an administrative process to allow for that sharing of courses.

Ms. SCHMIDT. Thank you. One more question. DAGSI is a tremendous cooperation. Have other organizations in other States inquired about or followed the DAGSI consortium model to support their local areas?

Dr. DOWNIE. I believe so, and I am going to need some assistance maybe from General Matthews. I hope I am not putting you on the spot.

General MATTHEWS. No.

Dr. DOWNIE. I believe that AFIT has worked with educational institutions around other Air Force bases and have established some similar working relationships.

General MATTHEWS. Yes. I can address that later, if you like, or now.

Ms. SCHMIDT. Fine, in the interest of time. Do you have any suggestions, Dr. Downie, on how other organizations in other States could accomplish the same as DAGSI for the benefit of their State and local universities and the military?

Dr. DOWNIE. Well, we are happy to provide whatever information we can on DAGSI and how we got through the blood, sweat, and tears that Dr. Thomas has spoke about in making this happen. We have talked, and we have talked very preliminarily but we haven't carried it very far yet, but we have talked about capturing how

DAGSI was established and what was needed to get it going and what our key value is and sort of wrapping that up as a model to offer to other organizations to take and run with.

I think there is opportunity there and that is something as we move forward in the future because we will be revamping our business model, that is something that we are seriously looking at as a contribution that we can make to other regions. It takes time for reputations to be built and that is happening with DAGSI. The vision has always been there that we would be a national model for collaboration and now I think the word is getting out. I think as that happens it will be an opportune time for us to take that model and run with it elsewhere.

Ms. SCHMIDT. Thank you. I yield back.

Mr. TURNER. Thank you. Dr. Downie, an important function obviously that DAGSI provides is funding and then the interrelationship between educational institutions. To what extent does DAGSI operate as a forum for the educational institutions to discuss areas in which they might have solely expertise or areas in which there are gaps that they might seek to provide additional educational opportunity?

Dr. DOWNIE. That is certainly a key aspect of DAGSI. It is an opportunity to take a look at us as a bundle and identify where we overlap and can be more efficient by eliminating some things where we do have gaps. If you look at what the focus areas and key majors at each of our institutions are, you do find kind of a natural grouping that is pretty distinct. We actually haven't had to do tremendous gap-filling and elimination of overlap because overtime I am sure it has evolved because of this collaboration to be this way where we don't overlap tremendously and we have synergies we can exploit.

Dr. CURRAN. I would just add, the way I look at it, we are working closely with the labs and working closely with the labs we identify the emerging areas that we have to maintain. I think at that point all the faculties react to that and hear what the base needs, hear what the lab needs, and we start moving into that area. That leads into DAGSI so it is the interaction with the labs that is key and informs the universities where they have to go, both the members and the affiliates in the research area so it's a process of close interaction between the labs, the universities, and DAGSI.

Mr. TURNER. Doctor, the statistics you provided as an appendage to your testimony, of course, will be part of the record also and they are very impressive. I just wanted to highlight some of them. I think in your testimony you had already indicated that over 500 DAGSI students have graduated with advanced degrees.

Then you go on to highlight that close to two-thirds of the graduates remain in Ohio and at least four of DAGSI graduates have started their own companies in Ohio and you give us the number of 40 percent as the estimate of those DAGSI graduates that are either working directly for Wright-Patterson Air Force Base or are working with defense contractors thereby continuing the capture of that knowledge base and its support for DOD.

As an impressive economic engine you have then performed a return on investment of statistics where you indicate that more than $18 million in follow-on funding to date is new money to the State

of Ohio with total project value of $32 million which far exceeds the investment by the State of Ohio. Could you talk about some of the ways that you can see the dividends that the return on investment expands for both our local community and for Ohio as these graduates enter our economy?

Dr. DOWNIE. I think success begets success. As an example, you mentioned specifically follow-on funding to seed money that DAGSI has provided through the AFRL DAGSI program. We fund teams of a certain size to do some preliminary work and get themselves far enough along to know whether their approach is going to work and that is going to attract more and more students through our program.

Then as follow-on funding comes in, the teams will grow. Often times these ideas will then move closer to a product or service stage. There may be small business relationships, patents, invention disclosures that come out, and ultimately new business coming out of what started as a seed project through the DAGSI program. It is sort of a seed that grows and blossoms over time.

It does take time but certainly as more and more students come here, we all hope that they continue to stay in the Miami Valley, or at least in Ohio, and contribute further to the economy but even though that leave the State it is actually good to export some of your talent because they take the word out that there is really neat stuff happening here.

We generate more excitement and more people that want to come here go to school. Hopefully we'll keep them here and they will continue to contribute to the economy. I think of it as a seed that is growing and blossoming overtime and our success will continue to breed that continued success.

Mr. TURNER. Dr. Downie, thank you for your preparation of your testimony. Thank you for participating today and for your hard work at DAGSI to make certain that you contribute to what is a wonderful public/private partnership that we are highlighting today.

Dr. DOWNIE. Thank you.

Mr. TURNER. Thank you for being with us.

With that we will turn to Congresswoman Schmidt's questions for General Bowlds.

Ms. SCHMIDT. Oh, thank you. General Bowlds, what are some of the benefits of bringing AFIT graduates to AFRL immediately following the completion of their degrees?

General BOWLDS. The first thing you get from anybody who comes into the lab fresh out of a degree program is their degree is fresh. We are dealing with technologies that have certain life expectancy because some of those fields are moving so fast so having a student who has graduated and their diploma is fresh, they come right into the lab.

Then you are getting the latest and greatest thinking on whatever technology area they might be in. I look at it as the other part of the ledger sheet, a return on investment the Air Force makes in those advanced degrees.

Once you've got that advanced degree putting it to work is where the real payoff is so that is why we enjoy having those folks come. Plus in many cases they have done research that was for their

master thesis or their dissertation that was part of the lab so they get to come into the lab and maybe finish that work that they started as a student so it's a very nice way to put that degree to work.

Ms. SCHMIDT. And to followup on that, does the cooperation between AFIT and AFRL benefit the local work force?

General BOWLDS. I think it does because you get those students who stay in the area. Obviously that's people who are contributing to the local economy. Many times the research that they have started when they were a student and finished when they come to the lab is a new field, a new endeavor that takes the Air Force down a new path that in turn we have to capitalize and build new lab facilities, bring in new researchers and reach out to the local university communities you have heard this morning to capitalize on. It does grow that local community.

Ms. SCHMIDT. Yield back.

Mr. TURNER. I think General Matthews can attest to this. I think one of the most fun moments, if there are fun moments during any BRAC review process, was when we went up to the roof of the AFIT building. When we got up to the top of the roof and we looked out over the sea of buildings that represent Wright-Patterson Air Force Base, the discussion turned to the integration between the research labs and AFIT.

You could hear from the BRAC commissioners that were here the shift in tone of their expectation because I think that their expectation when they raised the issue of the graduate programs would be that they might be a stand-alone building with stand-alone programs and stand-alone students that could be picked up and moved anywhere.

When we got to the roof of AFIT and looked out over the research labs and over Wright-Patterson Air Force Base it was clear that the campus wasn't the building that we had our first meeting on but the campus was Wright-Patterson Air Force Base. There were several aspects of that which you highlighted in your testimony that I think are important to focus on.

The first thing I am going to ask you is the fact that AFIT students are employed in research functions that are occurring at the research labs both in directing them in research and thesis they should undertake. The cost effective benefit of that for the research labs, in addition to what you indicated, if they come pretrained if they then stay, represented both an educational benefit and a cost-effective benefit for the research labs. Could you speak about that for a moment?

General BOWLDS. Sure. We would always like to have more research dollars for the lab. The problems that are out there presenting our warfighter and our Air Force far outweigh the amount of dollars that we have. So for us to be very effective and be very efficient and get the most out of those dollars, we have to figure out how to do partnerships. We have to figure out how to collaborate with companies, with universities, with our home court, the students at AFIT.

What I get from that partnership bringing those students from AFIT into the lab to do research is two things. I get the ability to

capitalize on fresh, young talent and it doesn't come out of any one budget. We share that burden, both General Matthews and I.

The other thing that you really get is some of these things that we're asking our researchers to do, some of the fields we are in you need brand new fresh ideas and the young students who come in who are at AFIT who come into the lab bring that fresh look to an old problem that may be the key to an answer.

When you take that fresh young mind and couple it with a mentor who has been around and know where the problems are, where the skeletons are, things you can't do, you can really then start to solve problems very, very quickly. You get to come about with new technologies that people weren't thinking about. The sum of the parts is better than the individuals is what we get by having those students come into the lab.

And, in turn, having researchers from the lab go into the university to go over to AFIT to teach because, and I'm going to put words in General Matthews' mouth, but I am sure he would like to have more professors than his payroll allows and so it allows him to get the expertise I got and keep people fresh on both sides of it. It is both hands scratching each other's back that we get from it. I hope that answers your question.

Mr. TURNER. Yes. In fact, you went into what was my second question and that is the fact that you have staff from the research labs that then take on professor duties at AFIT itself. One of the things in addition to just straight staffing, as you mentioned, and resources that I think might be a benefit from that and I would like you to speak about is that many times people say that when you go to teach a subject matter within which you work that you also not only are refreshed in the review that you undertake in teaching it but also that you learn more about the process yourself in teaching it to someone else.

Then there is the important function of the transfer of technology, making certain that the knowledge that you have here of a work force that has deep experience is passed on as a baton to the next generation and those individuals who are coming forward. Could you speak of the importance of that cross-pollination that occurs by your staff taking on teaching responsibilities at AFIT?

General BOWLDS. Certainly. Having a researcher who is fresh in the field who knowledge base is most current is how we can ensure that the research they do is then going to be world class. The term we use in the lab in the game-changing, that we are going to get game-changing kind of results out of that research.

My experience through colleagues and stuff is that one way a researcher may go and get their knowledge base back up to date is they take a sabbatical. They disappear for a period of time. Maybe go to a university or go to an industry and disappear for a year while they get up to date on the latest and greatest in both the body of knowledge, the research techniques, and what has gone on.

From the lab perspective I lose that individual for a year. Not that they don't come back that much more productive but I lose them for a year. The better way, or the way that works equally well, is what you just talked about, is having those researchers in the lab go over to AFIT and teach the new students into a field of

materials or electrical engineering because it helps them in their mind refresh what it is that their expertise is.

They have to get current on the latest body of knowledge because they are going to teach it. Plus they get asked the hard questions. They get asked the hard questions from those young minds that says, just like our children do, "How come? How come we have to do it that way?" It forces them to be on their toes and sharp. They do that before they go teach a class at AFIT.

They are gone for an hour a couple times a week plus the time they have to go to get into it but I still have them in my home court advantage. They are still doing research back in the lab and I think that is probably the start of that relationship of bringing those young researchers, those students from AFIT then back into the lab to help that researcher move their endeavor along.

Mr. TURNER. Congresswoman Schmidt, questions?

Ms. SCHMIDT. Yes, I would like to go to the Honorable Kevin DeWine.

Dr. Downie illustrated the fact that 75 percent of DAGSI graduates have degrees and experience directly relevant to the Third Frontier technologies. As we all know, Ohio has made a commitment to Third Frontier. I have a two-part question. Will this project benefit from Third Frontier dollars from the State of Ohio?

Mr. DEWINE. Mr. Chairman, Congresswoman Schmidt, I think the answer is yes. Whether it is directly or indirectly I might look down here to my partners to my left on direct benefit. Surely when we see investments in collaborations amongst universities on high-tech, Third Frontier initiatives, those are things that certainly benefit the economy.

They benefit the intellectual capital that exist here. We think that is a nice partnership, another program that partners well with the AFIT DAGSI consortium. All of those things are things that are going on here. There are Third Frontier programs being run through Wright State, being run through the University of Dayton. Again, it is the collaboration of the infrastructure of the faculty and the students and the private sector doing that work here whether it's directly through DAGSI or whether it's through the Third Frontier that I think is acredive to the technological and educational gain of the region.

Ms. SCHMIDT. I would like another question if I may.

Mr. TURNER. Sure. Please.

Ms. SCHMIDT. As you and I both know, Ohio is a term-limited State and you have a wealth of knowledge in this which is very beneficial to this program but, unfortunately, nothing lasts forever. My concern with projects like this is when the next group comes in to govern the State of Ohio where are we going to have the security that this level of commitment will continue? Is there any mechanism that you can establish in order to ensure that whoever follows in your footsteps will be as committed to this program as you obviously are?

Mr. DEWINE. Mr. Chairman, Congresswoman Schmidt, term limits, as we have often talked about, there's good and bad. You and I were beneficiaries of term limits. We were able to get elected in 2000 and be able to spend some time working together in the Ohio

House of Representatives in part because of term limits. I recognize that I am in the general assembly today because of term limits.

I also recognize that soon I will be out of the general assembly because of term limits. I think that is a problem with term limits that affects not just this program. It affects every last bit of every program that has any sort of State support. Clearly from the first time I got elected Wright-Patterson Air Force Base has been something that I have spent a great deal of legislative time both trying to understand because it is huge.

It is organizationally complex and it is difficult to understand so you have to commit your time and your energy to be able to understand all the moving parts here. I have spent a great deal of time doing that. Part of what we have to do is figure out how to continue that. As it relates to DAGSI and the AFIT partnership I think the great thing is you have wonderful community partners in the universities who take a very active role in working with their local members of the general assembly.

So not only does it become my job to pass the baton to whoever follows me, I think then we also as a community have to rely on folks like President Curran and Dr. Thomas and the members of that board, as well as our members of the Air Force to make sure that things don't get lost, that things don't lose priority, and that we keep a focus on the things that should move and should be supported because they will move our economy forward. That is clearly the case with this AFIT and DAGSI partnership.

Ms. SCHMIDT. Thank you.

Mr. TURNER. General Matthews, I am going to give you an opportunity to do a commercial. On page three of your testimony you speak of General Moseley's statements of the fiscal constraints that the Air Force will be facing as a result of the ongoing war on terror, modernization, and its impact on Air Force personnel cuts. You indicated for us that AFIT will have to adjust to fiscal realities.

You also indicate underlying in your comments the importance of investing in our educational programs. If you would, take a moment and give us your description of why we should, of course, look first to our educational programs for our future as we look to investment opportunities.

General MATTHEWS. Yes, sir. Again, Mr. Chairman and Congresswoman Schmidt, I appreciate this opportunity to address the committee because of the education requirements for the U.S. Air Force are very important to Secretary Wynne and our Chief articulated in their Letter to Airmen back in April.

Again, the top three priorities are, first, to win the war on terror. Also important is recapitalizing our fleet which is aging significantly. Also critical as part of the transformation year for us is the development of our airmen of which advanced academic education is a critical part. I look at it as the seed corn.

I was in the Pentagon on September 11, 2001. What I witnessed in the National Military Command Center firmly imbedded in me an appreciation of the preparation of our soldiers, sailors, and Marines. I guarantee you nobody who was in that National Military Command Center had gone through a war college class preparing for that moment for that eventuality.

What they had gone through was a lifetime of training and education which broadly prepared them for any eventuality which occurred which included that day and they performed magnificently in taking control of our airways, securing our Nation, and making sure that we were well prepared for those actions that occurred just a few short weeks later. I think it is interesting and that is why I put in my testimony in retrospect to look at how quickly we were able to quickly react to that situation and take down the Taliban in Afghanistan, and also prepare forces for the eventual war in Iraq.

That is why I look at education as being critically important, the preparation of our airmen because you can't predict what the future is going to be 10, 15, 20 years from now. I can't tell you what September 11, 2011 is going to be like, or September 11, 2021 is going to be. I will tell you that there will be threats to national security of the United States. The U.S. Air Force will be prepared because of the preparation of our airmen largely through the education of those airmen through advanced education.

The problem we face obviously today is the fact that the Air Force is downsizing. We have already announced personnel cuts, 57,000 positions, 40,000 full-time equivalence, again is a price that we feel we must pay now again to pay for the needed modernization of our fleet and also to sustain the ongoing cost of war which we must win.

What we are working with our headquarters on is a process of refining exactly what that requirement is and what portion of that the Air Force Institute of Technology will sustain through our graduate education programs. That is in a state of transition right now. We were in a program I referred to as Vector Blue that was a vision of our former Secretary Roach and our former Chief of Staff General Jumper which had a marked increase of the student through-put through AFIT over the last 4 years or so, over a 70 percent increase in our production.

We have leveled off that program currently which is appropriate given the fact that we are actually downsizing the force and we are not going to have the force that existed at the time the program was instituted. Nonetheless, the Air Force is firmly committed to the advanced education requirements of the force and we are revisiting exactly what those requirements are and we will continue to refine them. Again, I see great opportunities in the DAGSI consortium to help provide a new model of how we will provide that education for our airmen in the future.

Mr. TURNER. Since you have had a great deal of experience with this as a model, can you tell us ways in which DAGSI might be able to be improved or be more effective in assisting AFIT?

General MATTHEWS. First of all, it has been very useful, as Dr. Downie indicated earlier, as a model that we have been able to export to other areas. Most notably at Kirkland Air Force Base in New Mexico, University of New Mexico we have entered into a DAGSI-like arrangement where we actually provide aeronautical engineering classes to students at the University of New Mexico to augment something that doesn't currently exist within their system. That is a win-win situation for the Air Force because then we provide that expertise back to the Air Force and their graduates to

our laboratory and other facilities and defense-related industries in New Mexico.

We also have entered recently in the DAGSI-like arrangement with Loyola Marymount in Los Angeles in the Systems Engineering Program where our students at Los Angeles Air Force Base can take our courses and then transfer those over to their university for completion of a masters degree which is of great benefit to the Air Force.

It is hard for me to envision improvements. Perhaps I would like to see more opportunities to bring even more civilian students into the Air Force Institute of Technology because, again, I think that is of benefit to the Air Force and our integration of the total force which includes civilians. Because of the downsizing in the Air Force we have a significant need for those in uniform to serve an expeditionary role which means a lot of deployments overseas often times into hostile combat arenas.

That has put a pressure on the number of students that were able to bring to the Air Force Institute of Technology in uniform. I would envision a time in the future where some of the state-side requirements for those who are graduates of AFIT programs could be fulfilled by civilians where they are currently fulfilled by people in uniform.

We would still like to provide that education because of our focus, defense focus, military focus, Air Force focus at the Air Force Institute of Technology. DAGSI is a useful construct to provide scholarship funds to bring those civilian students to the Air Force Institute of Technology. Expansion in that area would be of benefit, I think, to the Air Force and to the country.

Mr. TURNER. Conversely, the Federal partnership and role in this do you see, especially as you are looking to Monday and the end of your involvement with AFIT, are there things at the Federal level that we should be doing differently that would have aided you or you think would aid AFIT in the future other than, of course, just funding that you see we might be able to address as either impediment or enhancement to what you do?

General MATTHEWS. As I mentioned in my written testimony, we are reviewing the business model we currently have at the Air Force Institute of Technology. We are a fully appropriated activity, as you know, though we do have a small number of our students specifically from sister services, Army, Navy, Marines who come and now because of recent legislation largely sponsored by the Ohio delegation, we are able to collect and retain tuition from those sister services and roll that money back into the Air Force Institute of Technology.

I see AFIT transforming similar to Naval Post Graduate School to where a portion of the school is, in fact, a fee for service. We can debate about what that percentage actually ought to be but if we are going to bring more civilians in, I would like a streamlined mechanism where we able to collect and retain the tuition to offset cost associated with those students coming into the Air Force Institute of Technology.

Now, exactly what those measures might entail I don't know right now. In fact, we have IPT, a pining team together which is reviewing that and we anticipate bringing forward to our head-

quarters a package listing a series of needed changes in policy or other perhaps restrictions that we currently have to more fully encompass a student body I envision in the future of AFIT so, again, we can not only educate these folks but we get paid for doing it. I think that is useful for the Air Force and useful for the country, too. It would help offset Air Force costs because, again, our resources are very scarce.

Mr. TURNER. That is a very excellent point. Thank you.

Congresswoman Schmidt, do you have a question?

Ms. SCHMIDT. I have one more and it is for Dr. Curran and Dr. Thomas.

What would happen to your respective universities if this public/private partnership ended as far as intellectual capacity bringing in new students to be prepared in science and math for the future, as well as the financial foundations of the universities?

Dr. CURRAN. Well, I certainly think a relationship with Air Force Research Labs over the years has led us into areas of research that the University of Dayton probably would not have pursued. For example, we mentioned that composites were ranked No. 2 in the Nation. I don't know if we would be as strong in that area because of something driven by our relationship again with the labs.

I can probably say the same thing for our more currently developed area of a nano characterization, nano research, that we moved forward with the community and with the base to establish a research program there. That probably would not be at UD campus. Also, our students who participate through DAGSI get a very unique exposure to be at the labs, some of them at the labs and the base. You simply don't have that opportunity to be exposed to this type of research.

They learn a lot about the Air Force culture and they are aware of positions opening up. I think that is one of the challenges that many of the positions at the base and at the military facilities are at times classified. The research is not well known. Top scientists do not get the exposure so through DAGSI and AFIT I think we get a lot of students in.

Again, I think it keeps you on the cutting edge. Again, in nano materials I don't think we would getting the National Science Foundation Funds we would today if we would not move forward with the questions by the labs and the various directorates.

Ms. SCHMIDT. Thank you.

Dr. THOMAS. Yes, Mr. Chairman, Congresswoman Schmidt, the DAGSI program is of tremendous benefit to Wright State, particularly in the College of Engineering in computer science. If that were to go away or be decreased substantially, it would be a major impact on our research funding in those areas. We would have to make up from other sources.

If AFIT were to go away to California or elsewhere, it would take away from our faculty a large number of very valuable collaborators that help us with our research programs and help our students with their doctorate dissertations. We have heard about the interaction between AFRL and AFIT. Certainly Wright State Faculty and students benefit from that by working in the teams on base in AFRL with AFIT students and with AFIT faculty so I think that would all be very serious for us.

Dr. CURRAN. Can I add one thing? I do think you have to take it a step beyond the universities themselves, again in the area of composites. Again, we follow the lead. The lab has a discussion. We establish an expertise in this. We then go after research money at Federal times, but it's what happens in the next step.

If you look at logical progression in the date and area, you can point to the national composite center, something that I do not think would be in this area if it were not for following the lead of the labs at the various directorates. I think it is a key step in the tech commercialization process in this region. Again, there is a number of companies that are based in composites and other areas. I think it is very important not for us, the universities, but the community beyond.

Ms. SCHMIDT. Thank you.

Mr. TURNER. Dr. Curran, Dr. Thomas, I am going to ask you guys three questions that Dr. Curran can begin with and then, Dr. Thomas, if you would follow on.

Dr. Curran, you began the discussion of this when you highlighted your national ranking as No. 2 in materials research by the National Science Foundation. First, do you see that each of your universities have developed expertise that you believe has distinguished you nationally, thereby attracting students and other interest in the university beyond just the research that is being done at the research labs and at AFIT? In other words, what is the dividend affect of the specific expertise that you developed through DAGSI?

Second, will you speak of the coordinated efforts between the two universities and AFIT as to the type of programming that is provided? Third, in your testimonies many of you highlighted some of the success stories. Please just give us some of your anecdotal thoughts on the importance of this program. We will begin with Dr. Curran.

Dr. CURRAN. I think it has been very important for us to track students. Again, we have a different portfolio of graduate offerings than most institutions. Clearly students look at UD to do different things.

I think it has been equally, if not more, important for the recruting of top-level faculty to come to the university. Earlier I referenced the area of nano characterization. We brought in an endowed professor in this area, again, reacting to identified needs by directorate. I do not think he would have come to the University of Dayton if he could not have worked with AFIT in the labs.

This was the key to recruting this individual. I can give repeated examples of that whether it be in fuels, be it in the area of aging aircraft. It is unique opportunities not only for the students but for the faculty. It really is an advantage for us out there.

The coordinated efforts between the two universities. There was a question earlier about can you duplicate this in other areas. I think we have just a tremendous relationship with Wright State. We do collaborative research. We recognize each other's strengths. We tend to have discussions about not duplicating resources. Again, I think that is a challenge for higher education in the future.

We have this wonderful relationship with Wright State and I would add Sinclair College also that allows us to talk through issues and then go out to the community. That is not a group we talked about a lot. The Dayton Development Coalition and other entities in the community come together and talk about a logical progression. Again, it has been a wonderful relationship and continues to be a good relationship. You asked for an area of expertise.

Composites is one again. We have moved ahead. We are nationally known. We are asking important questions. We have been involved in Third Frontier projects. We were the research institute's work that I think led to the first commercialization of a project under the Third Frontier and establishment of actual company around that. Again, I think it has made us very compositive. Jay can speak to Wright State's Third Frontier initiatives.

As a community we look for the possibility of again funding around aerospace medicine, a mission that is being vetted now. What can we do to contribute to the advancement of that mission on the base? Again, it is about cooperation. It is about requiring researchers who come to DAGSI to be on the base, to teach the courses with AFIT on the base. That is one of the logistical challenges.

I know you asked about opening this up. I think in the research area we certainly should be opening up and we do have relationships with universities around the State. But, again, I think we just have to be responding to this great relationship.

One other question you asked earlier, Representative, you asked Kevin. What would you do to keep this relationship? Let me respond to it. I would invest in DAGSI. I think the State should invest in DAGSI. If you look at the budget, Liz would never say this herself but it has been a static budget for a number of years. As the various missions are bedded down at the base because of BRAC, I think we are going to have to seriously look at how we can improve DAGSI and possibly diversify DAGSI. In order for this relationship to continue, it is that relationship between DAGSI and AFIT that is very important and what we should be investing in.

Jay, I will turn it over to you.

Dr. THOMAS. I mentioned that the formation of DAGSI was a win-win since 13 years ago, which is a long time in the history of Wright State. One of our wins in that process was the establishment of a new doctoral program in the College of Engineering in six research areas that were key to our interactions with the base and also with UD, AFIT, and other schools in Ohio.

That program was begun in 1996 and finally approved by the regions in 2001. It now has over 100 students. It is approaching something like 20 graduates a year. That is a large doctoral program. That has been very important to us over the years.

We are very proud also to have the Wright Center of Innovation called Data Ohio in data management which has been funded now for about 3 years. It is a good opportunity for economic development for the region. The Third Frontier is not a research program. It is an economic development program so organizations like DAGSI that provide some research funding are very important to sort of produce the seed corn that leads to the economic development.

We have now through the Third Frontier programs and Data Ohio been able to expand our College of Engineering. We have a new addition to our Russ Engineering Center of 50,000 square feet for Data Ohio being open in about 2 weeks. It is just about finished. If you drive down Colonel Glenn Highway you will see a large glass structure that I think should be a mirror of the technological expertise of the area. We will have a grand opening for that building on October 27th, I believe it is. You all will hear from us for that shortly. That's just a couple of things that have benefited Wright State through DAGSI and also AFIT partnership.

Mr. TURNER. Thank you. Representative DeWine, I am going to ask you the question I asked General Matthews which is you have had just a tremendous amount of expertise as you have made certain you know what is going on at Wright-Patterson Air Force Base. As you noted, the complexity of Wright-Patt as the different organizations that are here and how they interrelate. So you have expertise in not only advocating on the State level successfully for what the State needs to do, but also knowledge on what needs to be done on the Federal level.

I am going to ask you the same question that I asked General Matthews of thoughts you might have of things that we need to do on the Federal level to support this. After you answer I am going to give anyone the opportunity who wants to give us closing comments for the record to give us those closing comments and then we will be adjourning.

Representative.

Mr. DEWINE. Thank you, Congressman. I think I will defer my remarks to echo General Matthews. I would never pretend to be more knowledgeable than General Matthews on the things that can be done to improve to the benefit of AFIT and DAGSI so I will defer to General Matthews.

I will tell you, though, Congressman, I think this is a good time and a good opportunity for DAGSI. As Dr. Curran said, this is an opportunity for us to kind of figure out what the future of DAGSI is, to diversify it. And I think a good opportunity for us to invest a few more State dollars into this alliance and this consortium partly because of what we hear from our partners over here today.

As we have taken some time over the past 2 years in the general assembly our focus has been very singular, and that is to try to transform and revitalize Ohio's economy. Step one has been to try and change the tax code that has long served as a disincentive for investment. I believe we have done that so we are creating that environment where people will not be driven away from Ohio because of things like tax codes.

Our next step, as you and I talked about a little bit before this hearing got started, I think the next step quite honestly for us is to focus on the STEM disciplines: science, technology, engineering, and mathematics. Those are the disciplines that are going to drive our economy for the future. Those are things that are going to focus our limited State resources on a growing economy.

I think this is a good time both in terms of getting some attention from the Federal level. I think this is also a good time for DAGSI to get some attention again from the State level and try to partner with DAGSI to a greater extent than it has in the past to

support what we all know are significant resources and benefits to the Air Force, but also to the State of Ohio as well.

Mr. TURNER. Excellent. Again, I want to thank all of you for both your preparation, for your time today, and for your patience and the time being moved as a result of the late night that Congress had last night.

Whenever we have a hearing, I always want to give people opportunity to put anything else on the record in the form of a closing comment that they might have. As you have heard other people answer questions, it may have caused you to think of something that was important that you would like to have added. Or perhaps there is a question that you had prepared for that we did not ask that would have been important for us to ask that you might want to have responded to get on the record of this hearing today. With that before I close the hearing, I do want to ask if there is anyone who would like to embellish their testimony today?

General.

General BOWLDS. Just some closing comments. First off, Mr. Chairman, Congresswoman Schmidt, thank you very much for the opportunity. What makes Air Force Research Lab a viable institution is the collaboration we do on the DOD level with the national labs there, the NASA, the Navy, the Army, industry collaborations. But collaborations that we have talked about here this morning with AFIT and the collaborations that we get from the local university with DAGSI are very, very important to us to keep our researchers fresh, to keep our ideas fresh and keep the lab an exciting place to work.

You have heard it mentioned several times here today the Institute of Aerospace Medicine, which we are soon to spin up here and we are in the throes of figuring out how to make that happen, I believe is going to introduce a whole new chapter to that collaboration. Maybe to your comment, sir, in the change of leadership what kind of viability does organizations like DAGSI have?

My brief introduction to it is it is a win-win for all participants. Those kind of organizations have staying power as the leadership changed because those who come behind them recognize the importance of things like DAGSI, the importance of those partnerships. When you throw something into the mix like the Institute of Aerospace Medicine, I think that will only accelerate the level of collaboration and opportunity that we will see for the date and region and for Ohio in general. Thank you again very much for the opportunity to share my thoughts with you today.

Mr. TURNER. Thank you very much.

General Matthews.

General MATTHEWS. Again, Mr. Chairman, Congresswoman Schmidt, again, thank you for this opportunity to address a committee. My family and I are greatly saddened to be leaving the Dayton area. It is my first opportunity to visit Wright-Patterson Air Force Base despite being in the Air Force 20 years. My wife is a mid-western girl and she especially hates me now that with this first opportunity we are going to have to leave again. But I am also looking forward to heading back a little closer to my roots in North Carolina which is the actual birth place of aviation, I would point out.

Mr. TURNER. Now he says that.

General MATTHEWS. Can we get that stricken from the record? Is that possible?

Ms. SCHMIDT. Is that true?

Mr. TURNER. General, go ahead. We will tolerate that, especially since you have done such an incredible job.

Ms. SCHMIDT. Mr. Chairman, don't our license plates say the birth place of aviation? Didn't we pass that, Mr. DeWine?

Mr. TURNER. Thank you for giving us that bit of levity. Continue.

General MATTHEWS. I do appreciate and have especially come to appreciate the genius behind DAGSI over my last year here and the diversity and the opportunities it provides and marrying my own graduate educational experience. Even though I was enrolled in the engineering school I was able to take classes as part of my major degree in the School of Public Policy which greatly enhanced my effectiveness in my next assignment working on your staff during the time of the first Gulf War.

In fact, I recently was corresponding to a former squad and commander of mine who was my civil engineering squad and commander and an AFIT graduate who is currently in Baghdad helping rebuild the Iraqi Air Force. The thing that struck me is something that would enhance his capability was the broader appreciation of the environment he works in. In fact, our university initiative I mentioned in my opening remarks is to provide our expeditionary airmen greater skills, language, and cultural awareness.

I think there is an opportunity here for DAGSI, again, because of the relationship we have. This is not an area of expertise for the Air Force Institute of Technology. But I do think there is a blending of these skills between science, technology, engineering, and mathematics along with language and culture which DAGSI offers a model of how we might be able to bring those skills in without having to recreate that capability in this operation here. I look forward to those opportunities and the potential for that is something we will be exploring with AFIT in the future in alignment with our university initiative in that area.

Again, a small representation of that was a recent competition we had with our management program where three of our graduate students in their intermediate developmental education program participated in a State Department competition which they won first place in helping the State Department in human resources development case study against universities such as University of Wisconsin, Georgetown, and a little place up here called Ohio State. Sorry we beat them out but the fact is we are still an Ohio institution so the State of Ohio should still be very proud as I am of our graduates and their time here.

Again, thank you for this opportunity to address you.

Mr. TURNER. I appreciate again your leadership of AFIT. I know you will fully understand one of my favorite members of the Armed Services Committee is Representative Hayes from North Carolina. He and I have come to what I think is a distillation of this dispute between North Carolina and Ohio and that is that, as we are all aware, Ohio contributed the intellect and North Carolina contributed the wind. Thank you for your support, though, for North Carolina.

Anyone else for closing comments?

Mr. DEWINE.

Mr. Chairman, Congresswoman Schmidt, thank you both for holding the hearing today and coming here to learn a little bit more about the important relationship and benefits of DAGSI and AFIT. Thank you both for your commitment and your dedication to the men and women in uniform. Thank you for coming.

Ms. SCHMIDT. May I add just one thing? Thank you so much for your commitment to Ohio State and to the Wright Brothers in the place of aviation.

Mr. DEWINE. Thank you.

Dr. CURRAN. I thank you for the opportunity also. It has been a pleasure to be here to talk really about a model of collaboration. This is my 5th year in Dayton and I was surprised to see a community that always came together around issues. This issue in particular the relationship between research labs and the universities is unique. We identify issues and we move forward. DAGSI and AFIT then give us the educational opportunities and the research opportunities, the seed money. We talked a lot about that today.

I think the next step in the process then is so important for the Dayton region is organizations like the Dayton Development Coalition, Wright Brothers Institute, and certainly our delegation in Washington and Columbus. These ideas, these opportunities could pass by certainly if we did not have the followup with the delegations.

The seed money from DAGSI is important for research but the followup to establish the program in a directorate is very important. Finally, I think our greatest challenge in this area is how we successfully commercialize that. Again, this will be a reflection of collaboration also. Again, I thank you for being here and it has been a wonderful afternoon.

Dr. THOMAS. I would just like to comment that I think we are facing the next 5 years of tremendous excitement for the Dayton region as we move through the BRAC process both in aerospace medicine and censors and to comment that Wright State is fully committed to supporting the Air Force through these times and looks forward to increase the interactions with AFRL and future aerospace medicine and other new units as well as AFIT. Thank you very much for being here and for your support.

Mr. TURNER. Thank you very much. I would like to thank our distinguished panel of witnesses for their participation today. I appreciate your willingness to share your knowledge, experiences, and your thoughts with us. I would also like to thank you for your participation and, again, your patience for the time being moved.

Clearly there is an exceptional amount of coordination between all the institutions. As we have heard today, the relationship between the Federal, State, and local governments and the private institutions is a positive one for the country and Ohio and, most importantly, our soldiers and airmen in the field. For that reason it is important that we continue to work together to further the goals of the Air Force and our local institutions of higher education.

In the event there may be additional questions that we did not have time for today or the members who were not able to make it

today, we would like to submit the record will remain open for 2 weeks for submitted questions and answers.

I also want to thank the people of the Air Force Museum for hosting us today, especially at this time where we have the air show and they are faced with so many logistics. They have always been incredibly helpful whenever we have had an event here and I want to thank them.

With that we will be adjourned.

[Whereupon, at 1:14 p.m. the subcommittee was adjourned.]

○