S. HRG. 108–839

INFRASTRUCTURE NEEDS OF MINORITY SERVING INSTITUTIONS

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

FEBRUARY 13, 2003

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COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

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CONTENTS

WITNESSES

APPENDIX

INFRASTRUCTURE NEEDS OF MINORITY SERVING INSTITUTIONS

THURSDAY, FEBRUARY 13, 2003

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 2:35 p.m. in room SR–253, Russell Senate Office Building, Hon. George Allen presiding.

OPENING STATEMENT OF HON. GEORGE ALLEN, U.S. SENATOR FROM VIRGINIA

Senator ALLEN. Good afternoon to everyone. I would like to begin this hearing of the Commerce Committee. I first want to thank the Chairman of this Committee, Senator John McCain, who is the cosponsor of this legislation, for allowing us to have this very prompt hearing on this important measure, and I also want to state my appreciation to him for allowing me to chair this Committee.

I do want to say that not only is Senator McCain a cosponsor of this measure; so is Senator Stevens, who is the Chairman of the Appropriations Committee. The ranking Democrat on this Committee, Fritz Hollings, is also a cosponsor, and there are others, including Senator Lott of Mississippi, and many others.

And I think from this hearing, I hope we will get even greater support for it and we will get a vote on this measure, provided each of your testimony is probative, inspirational, and motivational to this Committee, and I am sure it will be.

We are going to examine in the Committee today the technology infrastructure needs of Minority Serving Institutions and the efforts by such institutions to address what is often referred to as the "digital divide." It is primarily an economic digital divide, but the institutions which you all serve in your various capacities of leadership are those who do understand the economics of it and recognize the needs.

I have always been one to look at ways to improve education. I think education is a key to the future. The best jobs are going to go, in the future, to those who are the best prepared. And regardless of one's religion or ethnicity or one's race, education is a part of that equal opportunity that is so essential for one to compete and succeed in life.

I am also one—when Senator Lott was leader—and I am grateful he had me as Chairman of the High-Tech Task Force, and I feel very strongly that technology is key to the future of our competitiveness and our military security in a variety of ways, and tech-

nology is obviously the key to the future for our students as they face tomorrow's challenges.

In my view, increasing access to technology provides our young people with an important tool for educational and future economic success. We are all aware that access to the Internet is not a luxury; it is a necessity. And because of the rapid advancement and growing dependence on technology, being digitally connected and digitally proficient becomes more and more important.

Today, we are here to discuss Senate Bill S. 196, the Digital and Wireless Technology Program Act, the legislation that I introduced this year to allow Minority Serving Institutions an opportunity to acquire technology equipment, hardware and software, digital network technology, and wireline and wireless infrastructure such as wireless fidelity or WiFi, to develop and provide educational services.

Sixty percent of all jobs require information technology skills, and jobs in information technology pay significantly higher salaries than jobs in the non-information technology fields. Students who lack access to information technology tools are at an increasing disadvantage, both academically and economically, for jobs. Consequently, it is important that all institutions of higher education provide their students with access to the most current technology and digital equipment. Many Minority Serving Institutions, however, still lack basic information and digital technology infrastructure.

A study completed by the Department of Commerce and the National Association for Equal Opportunity in Higher Education indicated these following points. No historically black college or university requires computer ownership for their undergraduate students. That may have changed since that report, but as of the date of that report, none did.

Thirteen Historically Black Colleges or Universities were reported to have no students, not one, owning a personal computer. That may not be the case for yours, but 13 out of 103 had no one owning a personal computer.

Another point. Over 70 percent of the students at Historically Black Colleges and universities rely on universities to provide computers. However, only 50 percent provide students with access to computers in computer laboratories, libraries, classrooms, or other locations.

Another point: Only 3 percent of Historically Black Colleges and universities have financial aid available to help students close the computer ownership gap.

So in a time when minority serving colleges and universities are increasingly facing problems, as far as financing, on a variety of fronts, they lack also, in many cases, in most cases, the foundational, the private foundational, assistance to support and upgrade their network infrastructure.

It is essential that resources, new resources, are made available to properly educate and prepare students who have, clearly do have, if given the opportunity, the education, the technology, and the infrastructure, the capability to lead for themselves fulfilling lives and contribute their talents in private enterprise or security or education.

This measure, the Digital Wireless Network Technology Program Act of 2003, seeks to address the technology gap that exists at many Minority Serving Institutions. The legislation establishes a new grant program within the National Science Foundation that provides up to $250 million over a five-year period to help bridge the digital divide at Minority Serving Institutions.

And I do want to welcome our five witnesses appearing before the Committee today and thank them for their willingness to testify on this important topic. I will introduce each of you as we go forward.

I do want to, without any objection, submit for the record a statement from the President of Virginia State University, Eddie Moore, supporting S. 196 and our efforts in the Committee, and also on behalf of Senator Talent, of Missouri, I would put in the written testimony provided by two Historically Black Colleges and universities from Missouri.

[The information referred to follows:]

PREPARED STATEMENT OF EDDIE N. MOORE, JR., PRESIDENT, VIRGINIA STATE UNIVERSITY

In my role as President of Virginia State University, I fully support the *Digital and Wireless Network Technology Act of 2003, S. 196*, submitted by Senator George Allen. The legislation to provide $250 million in grants to minority serving institutions, including Historically Black Colleges and Universities and Hispanic Serving Institutions, to aid in bridging the "digital divide in higher education," is certainly needed. With the challenges America faces and the current state of affairs, economically and socially, it is critical that "no child be left behind."

As we move into a society that is solely dependent on computers and technology-driven lifestyles, we must establish ways to ensure the broadest possible access to the tools necessary to survive in this electronic age. Members of society must have the "choice" to enjoy the efficiencies that technology promises; therefore, this bill is just as vital to the nation as it is to Virginians.

It is also critical that the proposed legislation is targeted to a portion of the society that to date, is underrepresented in technology careers, In an attempt to respond to market demands and the trends of the career market, in 2001, Virginia State University began to offer two degree programs—computer science and computer engineering, In only two years, the programs have enrolled nearly 150 students. Statistics predict that we will enroll more than 400 over the next four years. This bill will not only increase access for students, but also surrounding communities and the region will benefit.

In final, this legislation is timely, and I am sure that my colleagues in higher education, agree, that we can put it to good use. Therefore, I whole-heartedly support Senator George Allen's proposed legislation, Digital and Wireless Network Technology Act of 2003, S. 196. It is a step in the right direction for our students, communities and more importantly, the future of the nation. I hope that the Senate Commerce Committee will rule on it favorably.

PREPARED STATEMENT OF HENRY GIVENS, JR., PRESIDENT, HARRIS-STOWE STATE COLLEGE

For almost 150 years, Harris-Stowe State College has been committed to providing high quality education to residents of the St. Louis Metropolitan area. With roots in two historic St. Louis Institutions, Harris Teachers College (1857) and the African-American Stowe Teachers College (1890), Harris-Stowe State College is a unique institution offering a rich, multi-cultural environment in which students and faculty from a wide variety of economic, educational, ethnic and racial backgrounds learn and work together in harmony. Harris-Stowe State College offers twelve (12) degree programs in Teacher Education, Urban Specialization, and Business Administration, with an enrollment of approximately 2000. The College provides unlimited opportunities to many Metropolitan St. Louisans who otherwise would not have access to such.

Harris-Stowe State College is wired for high speed with (LAND) connection access across the campus. We have infrastructure in place and are constantly working to obtain both hardware and software sufficient in quantity and quality to meet the needs of students, faculty, and the community. Currently we have computer education programs for students and faculty along with academic technology components. All programs at the College require a number of technology competencies in learning, teaching, and the demonstration of knowledge. The technology staff on board is very competent and, through the MORE Net receives updated training, workshops and conferences that provide certification to work with faculty and staff.

Harris-Stowe State College has been committed to the steady increase of technology in teaching and learning for the past twenty-five (25) years; thus, the bill under consideration will strengthen the College's ability to continue moving forward toward the establishment of a wireless campus. Such a campus will provide faster and more efficient service to our students, faculty and the community. This development will enable our students and faculty to take advantage of a variety of sources in the learning process, such as distance learning, online services, and continuing education. It will also enable the College to effectively serve additional populations within the Metropolitan St. Louis area. For these reasons, Harris-Stowe State College enthusiastically supports Senate Bill 196, "Digital and Wireless Network Technology Program Act of 2003".

PREPARED STATEMENT OF DAVID B. HENSON, PRESIDENT, LINCOLN UNIVERSITY

Lincoln University, Jefferson City, Missouri, is very pleased to have this opportunity to work with Senator Jim Talent and this initiative to assist in strengthening the technology infrastructure of Historically Black Colleges and Universities. We strongly support this initiative and sincerely hope that it passes.

Lincoln University is an 1890 land-grant institution which is part of the Missouri state system of higher education. Founded in 1866 through the cooperative efforts of the enlisted men and officers of the 62nd and 65th Colored Infantries, Lincoln University was designed to meet the educational and social needs of freed African-Americans.

"The core Mission of Lincoln University is to provide excellent educational opportunities for a diverse population in the context of an open enrollment institution. The University provides student centered learning in a nurturing environment, integrating teaching, research, and service. Lincoln University offers relevant, high quality undergraduate and select graduate programs that prepare students for careers and lifelong learning. These programs are founded in the liberal arts and sciences and focused on public service professions that meet the academic and professional needs of its historical and state-wide student clientele."

The enrollment at Lincoln University for Fall 2002 was 3,092. There were 1,195 men and 1,897 women. There were 18 Asian/pacific Islanders, 25 Native Americans, 1,016 African Americans, 25 Hispanics, 1824 Caucasians 169 Non-Resident Aliens and 15 Other Aliens.

Among the various degrees offered, Lincoln University offers the Bachelor of Science degree in the following areas of Science and Technology:

Biology
Medical Technology
Chemistry
Mathematics
Physics
Civil Engineering Technology
Computer Information Systems
Mechanical Technology

Below are the two-year degree programs that are technology related:

Drafting Technology
Computer Science and data Processing
Pre-Engineering

Lincoln University's Institutional strategic plan, *Furthering the Dream*, recognizes the university's need to continue to pursue its traditional goals while at the same time change, improve, and meet the challenges of the new century to better serve our various constituencies. The importance of the technology infrastructure and supporting systems is in direct relation to our capacity to support the core mission of the institution.

The availability of funding from the proposed National Science Foundation Office of Digital and Wireless Network Technology to support our technology needs will

enable Lincoln University to accomplish multiple strategic plan objectives that will strengthen our institution and enhance our ability to make available research and educational opportunities to our diverse student population. Lincoln's core infrastructure and technology management support is solid. But, to continue to remain competitive and offer the technology required in today's learning environments, additional funding for equipment and support of the infrastructure is required.

Lincoln University seeks the capacity and support resources required to integrate information technology into curriculum development and pedagogical practices to enhance the quality and effectiveness of the teaching and learning environment for our students. We will use the funds to further implement the functionality of our web server application, Blackboard, to enable Lincoln to become a complete e-Education enterprise offering online teaching and learning capabilities, the development of campus communities and the promotion of efficiencies in faculty and staff use through Blackboard's integrated interface with our Administrative Computing System, Datatel Colleague.

Lincoln is challenged to increase student enrollment. The ability to provide innovative course delivery options to proactively and competitively position Lincoln University within its market to meet the unique needs of our diverse student population is critical. The funds will be used to upgrade the level of software maintenance and support; acquire learning technology management; provide instructional development that would include course management system training for all faculty, pedagogical training and course development; ongoing faculty and student support, infrastructure and network support. Enterprise application integration will include consulting, project management, application development and the integration of the Blackboard application into the university's web portal environment.

Funding will allow Lincoln to enable more of its classrooms to be classroom smart through the purchase of equipment and the implementation of high-speed connectivity required to further integrate classroom technologies into our curriculum. Our backbone network switch is upgradeable and, with additional funding, can support high speed and bandwidth necessary to provide quality of service video connectivity to the classroom. New equipment will allow instructors to bring video clips, presentation software and Internet resources direct to the classroom. Funding will be used to purchase this equipment, train faculty on its use and maintain support of it for reliable and effective use in the classroom.

Lincoln desires to strengthen our faculty resources, both through the ability to offer competitive compensation packages and the ability to increase the number of faculty retained, to instruct our students enrolled in our academic programs offered through our Department of Computer Science and Technology. Availability of new funding will afford us this opportunity.

The ability to enhance student academic laboratory facilities to incorporate technological solutions that can provide remedial tutorial assistance to students challenged with below average core competencies will help promote our students' success and improve the institution's overall retention rate.

Our new Administrative System, Datatel Colleague, will enable Lincoln to offer a higher level of customer services to our students. We hope to provide students and the community with online and web-enabled access to Lincoln University general information, access to admissions, enrollment, financial aid, bookstore and library schedules, billing information and services and secure access to the student's own university record.

Internet access is available from our residence halls, however only a small group of students today are in a financial position that allows them to purchase personal computers for their residence hail rooms. Our institutional plan, Furthering the Dream, challenges us to find a way to provide personal computers for each student as part of their learning experience at Lincoln University. We feel that technical competence is a lifelong learning skill that all students require. National Science Foundation funding will allow that dream to become a reality for our students. Students can master technical competence, use self-service administrative functionality via our web portal and have access from their residences for anytime access to research and educational opportunities available over the Internet.

Expanding on this concept, Lincoln desires to enhance the social experience of our diverse population by making portions of our campus wireless. This will encourage the use of the computing devices to be anywhere, anytime on campus. Increasing the marketability of Lincoln through integration of this kind of technology into the campus lifestyle will make Lincoln more attractive to future and current students, thus assisting Lincoln in its recruitment and retention efforts.

New classroom technologies and new service delivery methods make it a requirement for all faculty and staff to have equipment that supports those abilities. Lincoln would like to be financially able to implement a personal computer lifecycle

plan that allows for each faculty and staff member to have access to current and vital computing equipment.

Additionally, Lincoln will integrate the training required to support the delivery of enhanced student services made available through the technological progress into a structured Human Resources professional development program. We will design a structured training program offered through our Center for Teaching and Learning that spans basic computing navigation and skill development through advanced uses of technology in curriculum design and development. On-going professional development opportunities and follow-up support will be provided in a variety of formats thus ensuring that the functional and advanced operational skills necessary for each department to fully utilize technology to operate efficiently and effectively are obtainable. An assessment system to measure the effectiveness of professional development activities would be an essential part of the professional development program.

Our plan is for Lincoln University to develop and foster internal and external partnerships and collaborations, to include business and industry, governmental agencies and educational institutions that contribute to excellence. It is in this spirit that Lincoln will use funding made available through the National Science Foundation to achieve greater collaboration between institutions of higher learning, governmental agencies and business partners, not only in our community but globally.

Senator ALLEN. I would now like to turn it over to Senator Lott for any opening comments he would make, and then I will introduce each of you as witnesses.

Senator Lott?

STATEMENT OF HON. TRENT LOTT, U.S. SENATOR FROM MISSISSIPPI

Senator LOTT. Well, thank you, Mr. Chairman, for having this important hearing today on these issues surrounding the technology gap that exists at many of our Minority Serving Institutions. I would like to ask that my entire statement be made part of the record.

Senator ALLEN. Without objection.

Senator LOTT. I also want to thank this distinguished panel for being here, and I want to particularly recognize my good friend and colleague from my years in the House, former Congressman Flake. As I like to say, he has moved on to better and higher callings since he left the House, and does a fantastic job. It is good to see you again.

I do also want to note that there is no representative of Mississippi Historically Black Colleges and universities, here today and I am sorry about that. Next time, we will make sure there is a representative from Alcorn or Jackson State or Tougaloo or Rust. But I do have on my staff a graduate of Alcorn State University Marcus Ward back here, and I will get him to submit a statement for the record on behalf of Mississippi. I spoke at his commencement a few years ago, and then he has been working with me over the years. And we are proud of the job that Alcorn State University does in producing good students, not just great football players, I might say, George Allen, Steve McNair, of course, being the most famous one.

But our nation's Minority Serving Institutions have a rich history in educating many of America's best and brightest students and future leaders. It is important that we do all we can here in Washington to support their cause.

Of particular concern to me is our nation's Historically Black Colleges and universities. But the group of Minority Serving Institu-

tions also includes many institutions such as tribal colleges and Hispanic Serving Institutions, and I think it is important that we note that fact.

In my own state, roughly 9 percent of the nation's Historically Black Colleges and universities serve our students there. I want to recognize those eight schools: Alcorn State University, Coahoma Community College, Hinds Community College at Utica, Jackson State University, Mary Holmes College, Mississippi Valley State University, Rust College, and Tougaloo College. Next week when I am home, I will be meeting with the new president of Tougaloo College to discuss the needs there at Tougaloo.

So I am happy to cosponsor this important legislation. I think it can be very helpful to bridging this technology gap and providing greater opportunities for our students, who will then be able to go out and get a job when they graduate with that additional expertise.

I would also like to note the ongoing commitment we have in our state in bridging the technology gap. We worked, for instance, with Allstate Insurance to donate a $17 million facility that they had left in the Jackson, Mississippi area. They had a district office they vacated, a beautiful campus, and they donated that to Jackson State University, and it is now the Mississippi E-Center. And it is very impressive. It is a state-of-the-art complex with advanced computing and technology infrastructure and information technology faculty and support staff. It has not yet reached the heights we want it to, but we think it is going to do a lot to help fulfill that University's mission. It provides leverage that we need to have in our Historically Black Colleges and universities in such critical areas as remote sensing, engineering, science, and technology. In fact, we have also established a geospacial center for research at Jackson State University with $6 million in federal funds, I might add, Senator Allen. So I will put a little pressure on you to do something for your universities along those lines.

[Laughter.]

Senator LOTT. But I think this is a great idea. It is a challenge. It provides authorization, indicating the money that we should invest in this area. It does require, as I understand it, a 25 percent match from the universities and colleges, so everybody will have to help with this. I am very much a supporter of it.

I might also note that we are trying to do more in our state to help kids at the elementary and secondary level. A few years ago, I was at San Jose, Senator Allen, at a meeting with the high-tech community out there in California, and we went to a school and observed a program called Power Up. I do not know if you are familiar with it, but this is a program where the private sector donates computers to a classroom, usually in fifth grade or middle school. You get a teacher trained, with Federal funds, on how to teach children how to read by using computers. You get two Americorps volunteers that come in and work with the teacher. It has a phenomenal effect on these young people, many of whom would not learn to use a computer or read. But by combining the two, they learn the computer capabilities and they learn how to read. Even if they are playing basketball game on the computer, they are learning the computer. And we now have 55 schools in my state,

mostly in the Mississippi Delta, that are qualified for that program, and the first one being in Canton, Mississippi.

That type of computer program, that type of reading program, leading into what this program can do at our Historically Black Colleges and Universities and other minority institutions, I think, can really help to begin to bridge the technology gap, and I am delighted to be a cosponsor. I am pleased that you are having this hearing early.

I yield.

[The prepared statement of Senator Lott follows:]

PREPARED STATEMENT OF HON. TRENT LOTT, U.S. SENATOR FROM MISSISSIPPI

Mr. Chairman, thank you for holding this important hearing today on the issues surrounding the technology gap that exists at many of our country's Minority Serving Institutions. I also want to thank this distinguished panel for taking the time to be with us today. Our nation's Minority Serving Institutions have a rich history in educating many of America's best and brightest students and future leaders, and it is important that we do all we can here in Washington to support their cause. Of particular concern to me are our nation's Historically Black Colleges and Universities, but the group of Minority Serving Institutions also includes many outstanding Tribal Colleges and Hispanic Serving Institutions.

My own State of Mississippi is home to roughly 9 percent of the nation's Historically Black Colleges and Universities. I am pleased to be able to recognize these eight schools in Mississippi: Alcorn State University, Coahoma Community College, Hinds Community College—Utica, Jackson State University, Mary Holmes College, Mississippi Valley State University, Rust College and Tougaloo College. I am happy to be a co-sponsor of S. 196, the Digital and Wireless Network Technology Program Act of 2003, because it provides another opportunity to help the Historically Black Colleges and Universities in Mississippi. I always pay careful attention to legislation that could be beneficial for higher education institutions in my state. In fact, I recently co-sponsored an amendment to the Omnibus appropriations bill for Fiscal Year 2003 that authorizes additional funding for grants to preserve and restore structures at Historically Black Colleges and Universities.

Additionally, I would like to note an example of my ongoing commitment to assist Historically Black Colleges and Universities in Mississippi in bridging the technology gap. In 2001, I worked with Allstate Insurance in their $17 million donation of a facility to establish the Mississippi e-Center at Jackson State. The e-Center is an impressive state-of-the-art complex with advanced computing and network infrastructure, and information technology faculty and support staff. Through the e-Center, Jackson State is able to fulfill its educational mission and leverage its unique strengths in the areas of remote sensing, engineering, science and technology. I am also pleased to report that Jackson State is the only Historically Black College or University in the nation with three supercomputers. We are making strides in Mississippi to provide all our students with access to information technology, but the nation still has progress to make when it comes to providing for our Minority Serving Institutions of higher learning.

Mr. Chairman, I am pleased to be a co-sponsor of S. 196 because this legislation fits perfectly with my primary goals: to improve education and transportation, and create jobs for my home State of Mississippi and for the country. This bill is aimed specifically at improving educational opportunities by expanding the digital and wireless technology resources of Minority Serving Institutions in our country. The eight Historically Black Colleges and Universities in Mississippi would benefit tremendously from the targeted funds that would be authorized by this legislation, and as a result, the educational opportunities available to students at these institutions of higher education would be significantly increased.

By providing these enhanced educational opportunities both *through* technology and *in* technological fields, students will be qualified for better jobs. Additionally, the availability of these better-trained students in the Mississippi workforce will make it easier to recruit new businesses and industries to Mississippi—especially businesses and industries in the high tech arena. There will even be a transportation benefit that will result from the program proposed in this legislation. More efficient technological resources and training are a key component in the quest for more efficient and safe transportation networks.

As many of you know, the Commerce Department's National Telecommunications and Information Administration—or NTIA—partnered with the National Association for Equal Opportunity in Higher Education to produce a report entitled "An Assessment of Networking and Connectivity at Historically Black Colleges and Universities." This study contained some alarming and some encouraging discoveries regarding computing resources, networking and connectivity at these institutions. For instance, while 98 percent of the respondents report having basic access to the Internet, the World Wide Web and campus networks, fewer than 25 percent of students at these institutions own their own computing resources. It is clear that while these institutions of higher learning stand ready to drive from the "on ramp" onto the Information Superhighway, they still lag far behind other universities in America when adjusting to the new technological innovations and changes on the forefront, such as Third Generation Technology.

I am pleased that we have such qualified witnesses today to share their thoughts and views on this legislation, as well as the state of technology and computing resources at Minority Serving Institutions across America. It is my hope that this hearing will provide a clear understanding and commitment to strengthening the networking, connectivity and computing resources for these fine institutions.

Senator ALLEN. Thank you, Senator Lott. I know your many years of great service in working for the Historically Black Colleges and university in Mississippi, and it is a record, I am sure, and I know you are rightfully proud of.

And those AOL Power Up, that is remarkable to have that many in one state. Per capita, that is bound to be the best in the country. And thank you for your leadership.

I would now like to introduce our panel. First, Dr. William DeLauder, president at Delaware State University for over 16 years. Delaware State University was founded in 1890. Under Dr. DeLauder's leadership, the university has increased the number of faculty with doctorates from 44 percent to 72 percent. In addition, Delaware State now has implemented new graduate programs in the basic sciences, including biology, chemistry, physics, that all complement the new undergraduate program in computer science.

Thank you, Dr. DeLauder, for being with us.

Dr. Ricardo Fernandez, President of Herbert H. Lehman College University, City of New York. Dr. Fernandez has fostered, as president, increased collaboration between Lehman College and other local area schools in the area of technology and professional development curriculum. In addition to his duties as president, Dr. Fernandez is also professor of languages and literature at Lehman College.

The Honorable Dr. Floyd Flake, who—everyone is glad to see you back here, Mr. Congressman—is now president at Wilberforce University in Wilberforce, Ohio. It was founded in 1856. Wilberforce is the first institution of higher education owned and operated by African-Americans. The Reverend Dr. Flake served in Congress from 1986 to 1997. Dr. Flake was Senior Pastor of the more than 15,000-member Greater African Methodist Episcopal Church in New York, and he was President of the Edison Charter Schools before becoming President of Wilberforce.

Welcome back, Dr. Flake.

Dr. FLAKE. Thank you, sir.

Senator ALLEN. Senator Dorgan wanted to be here, but I will have the pleasure of introducing Dr. Monette before I go, finally, to our Virginia representative. Dr. Monette is the president of Turtle Mountain Community College in Belcourt, North Dakota. Dr. Monette is one of the founding fathers of the tribal college move-

ment and of the 25-year-old American Indian Higher Education Consortium. Dr. Monette also serves as a member of the National Advisory Group to the Institute of Higher Education's new millennium project and is a member of the North Dakota Information Technology Council.

Thank you for being with us.

And finally—I know it is not in the exact order—but, finally, Dr. Marie McDemmond, president of Norfolk State University in Norfolk, Virginia. Norfolk State is the fifth largest historically black university in our country. Most recently, Dr. McDemmond was appointed by President Bush to the President's Board of Advisors on Historically Black Colleges and Universities, and also appeared before this Committee last year with great influence on me as well as other Members of the Committee.

I would say to all of you all as we go forward, I have read through all of your very thoughtful and insightful testimony that you have provided for today's hearing and will make sure a complete text of your testimony is in the record for other Members to read and those on the floor and others who would be interested.

What I would like you all to do, if you could, today, in the time we have, is focus on this program in S. 196 and how this would actually help your college or your university or institution and effort. If each of you could elaborate specifically on the needs, the technology needs, of your college or your university or your endeavors and give some tangible examples of how these funds, if they were available, would actually tangibly help students in your institutions, that would be helpful.

In other words, basically, if we were to provide you all with $2.5 million, what would you do with it and how would that help the students at your colleges and universities or institutions? I think that is the sort of testimony that would be most helpful to us.

So, with that, I would like to first go to Dr. DeLauder. And please share with us your views, Doctor.

STATEMENT OF DR. WILLIAM B. DELAUDER, PRESIDENT, DELAWARE STATE UNIVERSITY

Dr. DELAUDER. Thank you very much, Mr. Chairman, and good afternoon.

Senator ALLEN. Good afternoon.

Dr. DELAUDER. To the Chairman of this Committee and to Senator Lott and to the distinguished Members of the U.S. Senate Committee on Commerce, Science, and Transportation, ladies and gentlemen, my name is William B. DeLauder. I am the President of Delaware State University located in Dover, Delaware. And I do want to thank the Chairman and the Committee for giving me this opportunity to have a chance to talk to you about the importance of technology at the nation's Historically Black Colleges and universities.

I do want to commend the sponsors of Senate Bill 196, because, if approved and funded, this bill will provide needed funding to bridge the digital divide that does exist between many Minority Serving Institutions and majority institutions.

I speak to you today on behalf of my University, Delaware State University, and on behalf of NAFEO. NAFEO, the National Asso-

ciation For Equal Opportunity In Higher Education. So I am here to represent both of those institutions.

As the Chairman has indicated, Delaware State University was founded in 1891. We were founded as a direct result of the second Morrill Act. We are one of the 17 historically black land-grant universities. We are a sister institution to Alcorn State, Senator Lott, in that regard. And as you probably know, NAFEO is the higher educational association that includes and represents about 118 historically and predominantly Black Colleges and universities within this nation.

Our nation has become, and rightfully so, immersed with technology. Its presence is inescapable in virtually everything we do of substance. It is present in our workplaces, in our supermarkets, our malls, our libraries, and in our homes, for those who are fortunate to have the resources to invest in the advantages of technology that technology provides in our everyday existence.

This generation of students is the high-technology generation. They enter college more technologically literate than previous generations. Their expectations are that technology will be extensively utilized in all aspects of college life. They make decisions about which college to attend in part on the technological capability of a given college or university. To be competitive in the recruitment of top students, HBCUs must possess the technology infrastructure and the expertise to fully utilize technology in teaching and learning and in administrative operations.

Delaware State University developed a technology plan in the late 1980s. This plan is a part of the university's strategic plan that is updated annually. The university's strategic goals and objectives include those that are designed to enhance the quality and efficiency of operations and services, improving teaching and learning, and improving communications between, within, and outside of the campus.

As a result of planning, of setting priorities, and acquiring needed resources, Delaware State University has made measurable success in efforts to expand the knowledge, skills, and experiences of faculty, students, and staff with our information technology infrastructure.

Delaware State University installed a fiberoptics network connecting all academic and administrative buildings on the campus somewhere around 1990, 1991. And during the next several years, work progressed in connecting all the dormitories to the campus network. The time lag in developing the network was due primarily to the inability to acquire the needed funds in a timely way to complete the connections in a much faster pace.

The university's library was computerized in the late '80s, and computerized literature and information technology began to be an important component of the library resources.

We began to develop a distance-education program in 1997. The university provides workshops and a dedicated workroom for faculty who desire to develop distance-learning courses. In Spring 2003, for example, we had 86 Web-enhanced courses being offered by 31 different faculty members for a total of 1,184 students. And with additional resources, the university desires to expand the

number of Web-enhanced courses and to begin developing and offering online courses in selected disciplines.

HBCUs vary in their state of technological infrastructure. And in Senator Allen's comments, he reflected on that with some of those statistics. Some of our institutions are more advances than others, but all have varying needs to be able to fully utilize the technology.

For DSU, for example, I will mention a few of those areas that we believe are important for us to continue to find the resources in order to enhance our technological capability, and these are the kinds of things that could be involved in a grant proposal for this particular piece of legislation in this program.

One, upgrading our network to have broadband capability so that we can enhance the responsiveness of it to handle the greater load that we have on our system and to be in the position to utilize Internet, too, and to be a part of that revolutionary change.

Second, to upgrade our wiring of several campus buildings and/or convert to wireless technology, where it is appropriate to do so.

Three, the need to continuously upgrade computer workstations with the latest technology. Technology is changing so that even once you buy all the workstations you need, in two or three years it is time to do upgrades. And new software requires more sophisticated machines to work with.

Professional development and release time and technical support for faculty involved in distance learning. And we are also wanting to establish video-conferencing capability between two of our off-campus sites that we have located, one in Wilmington, and one in the southern part of the State, in Georgetown.

Those are just a few examples of the kinds of things that we would see as assisting Delaware State to further develop our technology.

And let me just mention three things that relate specifically to the Senate bill that we are considering here today. One, I think it should be made clear to the Director of the National Science Foundation that the Senate expects that representatives from HBCUs will be extensively involved in the advisory council, which is required by Section 4(b) of this bill. I think that is extremely important.

Second, it is important to retain the exemption for matching funds for institutions with no or small endowments, as suggested in Section 5, because this will facilitate the involvement of institutions with modest resources. These will also be the institutions that have the greatest need for improving technological infrastructure.

And then, third, it is important to involve representatives of the HBCU community in the peer-review process used in rating proposals, because this will ensure fairness in the review process.

And I conclude, Mr. Chairman, by again commending the sponsors of this significant legislation, to thank the Chairman and the Committee for providing me with this opportunity to appear before the hearing, and, finally, say that all higher educational institutions owe it to their students to provide state-of-the-art information technology for teaching and learning so that all of our students leave us competent to live in this information society.

Thank you.

[The prepared statement of Dr. DeLauder follows:]

PREPARED STATEMENT OF DR. WILLIAM B. DELAUDER, PRESIDENT, DELAWARE STATE UNIVERSITY

Mr. Chairman, distinguished Members of the U.S. Senate Committee on Commerce, Science, and Transportation, ladies and gentlemen, my name is William B. DeLauder, President of Delaware State University (DSU) in Dover, Delaware. I thank the Chairman for giving me this opportunity to come before you to speak on the importance of technology on the nation's Historically Black Colleges and universities.

I commend the sponsors of Senate Bill 196, a bill to establish a digital and wireless network technology grant program for Minority Serving Institutions. If approved and funded, this bill will provide needed funding to bridge the digital divide that exists between many Minority Serving Institutions and majority institutions.

I speak to you today on behalf of my university, Delaware State University, and on behalf of NAFEO, the National Association for Equal Opportunity in Higher Education. Delaware State University, founded in 1891 as a direct result of the Second Morrill Act, is one of the 17 Historically Black land-grant universities within the United States. We serve approximately 3,300 students in programs at the baccalaureate and masters levels. Our degree programs include the traditional arts and science disciplines and degree programs in agriculture, business, education, social work, airway science, and nursing. As you probably know, NAFEO is the higher educational association that includes and represents the Historically and predominately Black Colleges and universities.

One third of all African Americans with undergraduate degrees earned them from a Historically Black college and university (HBCU). So it can be unequivocally said that HBCU's are providing immeasurable and invaluable service to the educational strength, growth and vitality of our nation.

Our nation has become, and rightfully so, immersed with technology. Its presence is inescapable in virtually everything we do of substance. It is present in our workplaces, our supermarkets, our malls, our libraries and in our homes for those who are fortunate to have the resources to invest in the advantages technology provides in our everyday existence.

This generation of students is the high technology generation. They enter college more technologically literate than previous generations. Their expectations are that technology will be extensively utilized in all aspects of college life. They make decisions about which college to attend, in part, on the technological capability of a given college or university. To be competitive in the recruitment of top students, HBCUs must possess the technology infrastructure and the expertise to fully utilize technology in teaching and learning and in administrative operations.

Students who enter HBCU's think critically, have a budding desire to engage in cutting edge research and have a commitment to academic excellence. Our institutions can do no less than to maintain their enthusiasm for learning. Our institutions understand and appreciate the obligation to prepare students for productive lives, to contribute to society and make a difference in their communities.

The mission of the majority of the nation's Historically Black Colleges and universities is teaching, research and public service. An infusion of state-of-the-art technology at these institutions would significantly and dramatically increase their ability to prepare students for success in an ever-increasing global society.

Delaware State University developed a technology plan in the late 80's. This plan is a part of the University's strategic plan that is updated annually. The University's Strategic Plan includes goals and objectives on the use of technology. The goals include enhancing the quality and efficiency of operations and services, improving teaching and learning, and improving communications both within and outside of the campus.

As a result of planning, setting priorities, and acquiring needed resources; Delaware State University has had measurable success in efforts to expand the knowledge, skills and experiences of faculty, students, and staff with our information technology infrastructure. The University is committed to raising the level of technology to its highest standard in keeping with its own agenda and the availability of funding.

Delaware State University installed a fiber optics network connecting all academic and administrative buildings on campus in 1990–91. During the next several years, work progressed in connecting all dormitories to the campus network. The time lag in developing the network was due to delays in acquiring the needed funds to complete the connections. The University's Library was computerized in the late 80's and computerized literature and information technology began to be an important component of the library's resources.

DSU began to develop a distance education program in 1997–98. The University provides workshops and a dedicated workroom for faculty who desire to develop distance learning courses. In Spring 2003, 86 web-enhanced courses are being offered by 31 faculty members with a total of 1,184 students. With additional resources, the University desires to expand the number of web-enhanced courses and to begin developing and offering on-line courses in selected disciplines.

The use of technology holds tremendous promise at DSU and other HBCU's. For example, the move from need to merit based funding at public institutions require that even more resources be allocated to advising and retention services. We believe technology can be employed creatively to generate more and higher quality services with faculty previously assigned to other tasks.

As a result, we will expand the student-centered nature of our university and enhance the instructional quality of our programs.

Moreover, we believe the administrative efficiency of our institutions can be increased with more targeted applications of technology, shared functionality, and cooperative services using technologies and communications systems. Technology also will enable Delaware State and other HBCU's to create realistic environments for students to learn to compete in the worlds outside their respective campuses. In a very real way, I believe technology will truly increase our ability to provide quality education for a diverse student body, training and development for dedicated faculty and improved community outreach services through sophisticated transfer networks.

With regard to Senate Bill, I offer the following comments:

(1) It should be made clear to the Director of the National Science Foundation (NSF) that the Senate expects that representatives from HBCUs will be extensively involved on the Advisory Council required by Section 4(b) of the Bill.

(2) It is important to retain the exemption for matching funds for institutions with no or small endowments (Section 5) because this will facilitate the involvement of institutions with modest resources. These will also be the institutions that have the greatest need for improving their technology infrastructure.

(3) It is important to involve representatives of the HBCU community in the peer review process used in rating proposals. This will ensure fairness in the review process.

I again commend the sponsors of this significant legislation and I thank the Chairman and the Committee for this opportunity to appear at this hearing.

Senator ALLEN. Thank you. Thank you, Dr. DeLauder, for your remarks, all your provisions, specifically with the bill. I understand, in drafting this, on the National Science Foundation, some of the concerns. You do not have to be a stepchild to any other university in this. The peer review and the participation by Minority Serving Institutions, Historically Black Colleges and universities, will be part of that confidence that you have in the applications.

Since you have brought up wireless, which I think has great potential, and hopefully we will get a good wireless bill through this Committee as well, allocating that unlicensed part of the spectrum for high speed. The president of Virginia Union University is here in the room, Dr. Bernard Franklin. They have figured out how to put in wireless. They have done it. Also, St. Paul College President, Dr. Waddell, I think, is here. Okay, there you are. Thank you all for being here.

Now, I would like to hear from Dr. Fernandez.

STATEMENT OF DR. RICARDO FERNANDEZ, PRESIDENT, HERBERT H. LEHMAN COLLEGE

Dr. FERNANDEZ. Thank you, Senator Allen, and good afternoon. Good afternoon to all Members of this Committee.

I am honored to testify on behalf of HACU, the Hispanic Association of Colleges and Universities, and the Hispanic higher education community in support of Senate 196, the Digital and Wireless Network Technology Program Act.

My name is Ricardo Fernandez, and I am in my 13th year as President of Herbert H. Lehman College of the University, City of New York. Lehman is a four-year, comprehensive public institution located in Bronx County, New York. I am the Vice Chair and chair-elect of the Board of the American Association of Higher Education and Chair of the Hispanic Educational Telecommunications System, a consortium of 18 Hispanic Serving Institutions engaged in distance education. I am also a past Chair and current Board member of the Board of HACU.

Half of all Latino students engaged in higher education attended HSIs. In urban areas across the country, HSIs also educate a significant percentage of African-American students. In my own institution, for example, 44 percent of the students are Latinos, while 33 percent are African-Americans. Therefore, any program that assists such HSIs will also benefit other minority group members attending such institutions.

The number of Hispanic Serving Institutions is expected to grow proportionately over the next 10 or 15 years with the population, so it is important that bills such as the one under consideration be supported, because they will provide urgently needed resources to meet the demands in educational training that is required in our technologically driven economy.

A great number of the Latinos coming to higher education are first-generation students. At Lehman, for example, 51 percent of our students are the first in their families to attend college. Twenty-five percent of them have parents with an eighth-grade education or less, and 58 percent have household incomes of less than $30,000. Fifty-five percent of them, moreover, work at least 20 hours or more.

At my own institution, to get to the request that you asked, to be specific, we are struggling to provide access to network to students and faculty. Providing fiber and copper cabling, switches, and routers to every building and classroom is simply very expensive; for us, really cost prohibitive. Through grants and special capital allocations, we have been able to provide Internet access to faculty and students at the campus library, at our information technology center. We have a number, also, of "smart" classrooms—that is, classrooms equipped with voice, data, and video connectivity for video presentation and video-conferencing. However, these classrooms are too few to have a significant impact on large numbers of students.

Wireless networking is a relatively low-cost means of providing access to the Internet to students, faculty, and also to the surrounding communities. At Lehman, we have begun a limited project to provide campus-wide access to the network through wireless technology.

Currently, we have a dozen access points deployed throughout the campus to provide Internet access. These include the student cafeteria, the library, and three classrooms. This was accomplished through specialized funding and grants. However, we would need approximately 100 access points through our 37-acre campus in order to have a true wireless network for students. At the pace we are moving, the technology we are now installing may well be obsolete before the project is finished.

One useful resources has been the advanced network for Minority Serving Institutions project. This is an NSF-funded grant managed by EDUCAUSE, serving a hundred institutions, all of them designated HBCUs, HSIs, and tribal colleges. Lehman is part of this network and is benefitting, along with the two community colleges in the Bronx that are among our highest feeders.

Projects such as the AN–MSI have attempted to address the concerns of Minority Serving Institutions as they seek to develop and expand network capabilities. This bill, S. 196, represents hope for institutions such as ours to provide students with the necessary technological skills needed in today's economy.

The opportunity to expand collaborations with schools through teacher training programs means that those schools will have teachers trained in the latest modalities in order to incorporate the use of technology in school curriculum.

At our institution, we struggle to integrate technology into the curriculum. A lot of the faculty, a lot of the older faculty, still teach with their notes. Some of the younger faculty, that are more acquainted with technology and less afraid, are able to incorporate and make those lectures and activities a lot more exciting.

We have received a FIPSE grant from the Department of Education, and it has allowed our division of education to develop an infrastructure of local area networks to incorporate technology into teacher and counselor education programs. Three wireless classrooms, the ones that I referred to earlier, are part of that. As the next step, we want to develop wireless classrooms at two elementary schools to facilitate teacher training and professional development.

Through several projects, we have already gained access and are involved with every school district in the borough and dozens of schools in our neighborhoods. We have, for example, a Gear Up grant, which has enabled us to provide computers and training on how to use them to gain access to the Internet to hundreds of students and parents in six school districts in the Bronx.

We also have—and I want to just mention this parenthetically—we also have a Small Business Development Center on our campus that serves the borough. And one of the specific activities that I have been promoting, in line with the mission of our school, reaching out to the community, is to make that center assist small businesses in becoming more technologically proficient. And it seems to me that, through that, through this type of legislation, that what helps the institution would also result in helping the Small Business Development Center become a better server of technology to the small business community, which often does not know and is in very great need of that.

One final point I just want to make in my comments, and that is that I, too, support the provision in this bill that allows a waiver of the matching requirement for institutions with no endowment or with an endowment of less than $50 million in current value. This is vital for most Minority Serving Institutions. Most of our institutions have small endowments, or many have no endowments to speak of at all. Without a waiver of this provision, they would be effectively foreclosed from taking advantage of the funding opportu-

nities provided for in this bill. And I urge you strongly to keep this provision.

I am very much encouraged by the Senate's recognition of the need of Minority Serving Institutions to expand their digital and wireless network capabilities, and that policymakers such as you are considering a bill that addresses this need directly. I applaud your leadership, Senator Allen, the leadership of Chairman McCain, and the many cosponsors of this critically important bill.

On behalf of the Hispanic higher education community and speaking in general about Minority Serving Institutions, I would urge the support of this Senate Bill 196.

Thank you very much.

[The prepared statement of Dr. Fernandez follows:]

PREPARED STATEMENT OF DR. RICARDO FERNANDEZ, PRESIDENT, HERBERT H. LEHMAN COLLEGE

Introduction

Good afternoon Senator McCain and Distinguished Members of the Committee.

I am honored to testify on behalf of HACU and the Hispanic higher education community in support of S. 196, the Digital and Wireless Network Technology Program Act. My name is Ricardo R. Fernandez and this is my thirteenth year as President of Herbert H. Lehman College of the University, City of New York System. Lehman College is a four-year comprehensive public institution, which is located in Bronx County, New York. I am the Vice Chair/Chair-elect of the Board of the American Association of Higher Education (AAHE) and Chair of the Hispanic Educational Telecommunications System, (HETS), a consortium of eighteen Hispanic Serving Institutions (HSIs) engaged in distance education. I am also a past Chair and current Board member of the Hispanic Association of Colleges and Universities (HACU).

HSIs are fast becoming an important national resource for the education of Hispanics and other minority groups in the nation. Half of all Latino students engaged in higher education attend HSIs. In urban areas across the country, HSIs also educate a significant percentage of African-American students. In my own institution, 44 percent of the students are Latinos, while 33 percent are AfricanAmericans and Black students from the Caribbean Islands. Therefore, any programs that assist such HSIs will also benefit other minority group members attending such institutions.

It is well known that the Latino population has rapidly expanded to become the largest minority group in absolute numbers in the nation. The number of Hispanic Serving Institutions is expected to grow proportionately over the next five to ten years. Our nation and economy will demand that Latinos be educated and trained in the latest technological innovations in telecommunications and bio-technology, among others. The skills necessary to function in these areas as well as to become productive members of our economy and assume leadership roles in our society can only be provided through higher education. The proposed bill S. 196, as written, would serve to provide Minority-Serving Institutions (MSIs), including HSIs, with important and urgently needed resources to meet the quality demands in educational training required in our technological driven economy.

Many Latino students come to our institutions with barriers such as low income and family obligations. A great number of Latinos are first-generation college students. At Lehman College, for example, 51 percent of our students are the first in their family to attend college. Twenty-five percent of them have parents with an 8th grade education or less, and 58 percent have household incomes of less than $30,000. In urban areas where housing is not affordable, additional pressures are placed on students to make financial contributions to their households. At Lehman College, 55 percent of our student body works at least 20 hours or more.

A recent study from the Pew Hispanic Center revealed that although Latino students are attending college proportionately to the population, they are not completing college at an appropriate rate. There are many impediments that make it difficult for Latino students to persist in college and to graduate. Some could be addressed by providing opportunities to study without being physically in classroom for a full program. Distance education can assist in fulfilling this gap. To be sure, more can and should be done to incorporate asynchronous modalities into college

courses and assignments. While in school, students must learn how to use the technological resources available in our society. These include tools such as portals and the manipulation of information and data provided through the Internet. Too often, educational institutions lack the appropriate network capabilities to expose students to the power of the Internet or to teach them how to access information with these new modalities. In addition, current fiscal conditions in many states across the nation make it impossible for institutions of higher education to receive the resources necessary to provide these modalities.

At my own institution we are still struggling to provide access to the network to students and faculty. Providing fiber and copper cabling, switches and routers to every building and classroom is simply cost prohibitive. Through grants and special capital allocations, we have been able to provide Internet access to faculty and students at the campus Library and at our Information Technology Center. We have several "smart classrooms," that is, classrooms equipped with voice, data and video connectivity for video presentation and video-conferencing. However, these classrooms are too few to have a significant impact on large numbers of students.

Wireless networking is a relatively low-cost means of providing access to the Internet to students, faculty and also to surrounding communities. At Lehman College we have begun a limited project to provide campus-wide access to the network through wireless technology. Currently we have a dozen access points deployed throughout the campus to provide students with Internet access. These include the Student Cafeteria, the Library and three classrooms. This was accomplished through specialized funding and grants. However, we would need approximately one hundred access points through our 37-acre campus in order to have a "true wireless network" for our students. At the pace that we are moving, the technology may well be obsolete before the project is finished.

One useful resource has been the Advanced Network for Minority Serving Institutions (AN–MSI) Project. This is an NSF-funded grant managed by EDUCAUSE, serving 100 institutions, all designated as HBCUs, HSIs and Tribal Colleges. Lehman College is part of this network and is benefiting, along with the two CUNY community colleges in The Bronx. Projects such as the ANMSI have attempted to address the concerns of MSIs as they seek to develop and expand their networking capabilities. This bill S. 196 represents hope for institutions such as ours to provide students with the necessary technological skills needed in today's economy. In addition, the opportunity to expand collaborations with schools through teacher training programs, means those schools will have teachers trained in the latest modalities in order to incorporate the use of technology in school curricula.

At Lehman a FIPSE grant has enabled the Division of Education to develop an infrastructure of Local Area Networks (LANs) to incorporate educational technology into their teacher and counselor education training program. The three wireless classrooms I referred to earlier are in this program. As a next step we plan to develop wireless classrooms at two local elementary schools to facilitate teacher training and professional development. Through several projects we are already involved with every school district and dozens of schools in the borough. We have a Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR–UP) grant which has enabled us to provide computers (and training on how to use them to gain access to the internet) to hundreds of students and their parents.

We also have an initiative called the Bronx Information Network (BIN), which is a consortium of 70 educational and health community-based organizations focused on the cooperative use of technology. As the funding for this project has come to an end, the member organizations are not able to afford paying for access to the Internet. This bill opens up great possibilities for Lehman College and like institutions to continue working with their surrounding communities. One concrete example lies in the fact that many colleges and universities operate Small Business Development Centers. By expanding the technological capacity of their operations these SBDCs could reach a wider segment of the small business owners and to help make in the application of technology to make their business ventures more efficient and profitable. Continuing professional training for health care workers who need to upgrade their skills can be provided conveniently at their place of work or at home through asynchronous modalities. These are just a few concrete examples of the specific needs that institutions of higher education can address with the funds that S. 196 would provide.

There is one final point that I would like to make. Section 5 of S. 196 allows a waiver of the matching requirement for institutions with no endowment or with an endowment of less than $50,000,000 in current value. This is vital for most minority institutions. Most MSIs have small endowments and many have no endowments at all. Without a waiver of this provision, they would be effectively foreclosed from tak-

ing advantage of the funding opportunities provided for in this bill. I urge you to keep this provision.

I am very much encouraged by the Senate's recognition of the need for Minority-Serving Institutions to expand their digital and wireless network capabilities and that policy makers are considering a bill that addresses this need directly. I applaud the leadership of Senators Allen, Chairman McCain and the many co-sponsors of this critically important bill.

Overview

The Hispanic Association of Colleges and Universities (HACU) represents more than 340 colleges and universities in the United States, including more than 200 Hispanic-Serving Institutions, or HSIs—including Herbert H. Lehman College of the University, City of New York. HACU-member institutions collectively enroll more than two-thirds of the 1.6 million Hispanics in higher education today, as well as countless non-Hispanics who enrich the diversity of their fast-growing campus communities.

S. 196 will directly address the widening Information Technology divide in American higher education by targeting urgently needed new funds directly to HSIs and other Minority-Serving Institutions. New national security priorities and a fast-changing global economy now demanding a more highly educated workforce requires the expedient elimination of the digital divide between minority and non-minority populations in our country, particularly on our college campuses. Underscoring this national imperative is our country's rapidly changing demographics, overwhelmingly impacted by Hispanic American communities representing the nation's youngest, largest and still fastest-growing ethnic population. S. 196 directly addresses this challenge.

Infrastructure, Equipment and Capabilities

S. 196 would provide $250 million in National Science Foundation grants in each year over a five-year period to Hispanic-Serving Institutions (HSIs) and other Minority-Serving Institutions to substantially enhance their technology infrastructure, programs and training to bridge the digital divide. That S. 196 specifically identifies Minority-Serving Institutions as eligible recipients of S. 196 funding is testament to the intent of this Act to reap the greatest benefits for each dollar invested in those institutions with the strongest expertise and widest reach to the "have-nots" of the digital divides.

An over-riding goal of HACU and HSIs is to increase the numbers of Hispanic college graduates with advanced skills in every discipline in which Hispanics now are under-represented. S. 196 promises not only to narrow the technology training gap, but also to ultimately increase college completion rates overall by providing Minority-Serving Institutions the tools they need to enhance pre-collegiate and on-campus student success.

HSIs receive less federal funding on average per student compared to all other degree-granting institutions. Because of the persistent per-student funding disparities suffered by HSIs, these institutions—and the students, future K–12 teachers and larger communities served by these HSIs—clearly stand to benefit from S. 196 investments in infrastructure, equipment and capabilities.

Most HSIs are located in major, urban areas of the country with a comparatively higher concentration of poverty and subsequently lower average tax base. Thus, these HSIs cannot depend on local dollars to adequately address the digital divide. Moreover, state support for higher education has been declining on a per-student basis in almost every region of the country.

Because the mission of these HSIs is to promote higher education access to a population that suffers historically high poverty rates, most HSIs have declined to increase their tuition and fee formulas. HSIs are thus compelled to rely on the few federal resources now available to them. S. 196 provides HSIs and other Minority-Serving Institutions a much-needed increase in federal dollars.

Faculty Development

S. 196 will allow HSIs and other Minority-Serving Institutions to seek grants, contracts or cooperative agreements to "develop and provide educational services, including faculty development, to prepare students or faculty seeking a degree or certificate that is approved by the state, or a regional accrediting body recognized by the Secretary of Education."

Increasing the ranks of Hispanic and other minority teachers is of paramount importance, not only to higher education institutions but also to the nation's public schools. HSIs already award approximately 50 percent of all teacher education degrees earned by Hispanic higher education students.

However, because of a lack of funding for teacher education at HSIs, the shortage of Hispanic teachers is acute. While 14 percent of the elementary and secondary education student population is Hispanic, only 4.3 percent of public school teachers are Hispanic, according to the U.S. Census Bureau Digest of Education Statistics for 1998 and 1999. In higher education, only 2.4 percent of all full-time faculty members are Hispanic (IPEDS, 1997).

Hispanics now earn master's, doctoral and professional degrees at the rate of 2.4 percent among the adult population—compared to 6.0 percent for non-Hispanics. Hence, the numbers of Hispanics attaining advanced degrees must more than double to achieve parity. Yet, only 20 percent of HSIs offer a master's degree. Less than 12 percent of HSIs offer a doctoral degree. S. 196 directly addresses the need to increase the capabilities of HSIs to produce more teachers with advanced degrees.

Technology in the Classroom

S. 196 will allow HSIs and other Minority-Serving Institutions to seek grants, contracts or cooperative agreements to "provide teacher education, library and media specialist training and preschool and teacher aid certification to individuals who seek to acquire or enhance technology skills in order to use technology in the classroom or instructional process."

Enhancing teacher education, classroom technology use and instructional skills will focus on expanding the only means of technology access for many of the youngest of the "have-nots" of the digital divide. A survey on computer access released September 5, 2001, by the U.S. Census Bureau reports that while only 33.7 percent of Hispanic households own a computer, 70 percent of the nation's Hispanic students have computer access at school.

The long experience and proven expertise of HSIs in addressing minority public school and community needs makes these institutions a vital partner in efforts to enhance teacher technology training, classroom and instructional skills. S. 196 capitalizes on the geographic proximity, crosscultural understanding and existing community outreach of Minority-Serving Institutions by inviting their active participation in new technology initiatives in the nation's public schools.

Technology Partnerships

S. 196 will allow HSIs and other Minority-Serving Institutions to seek grants, contracts or cooperative agreements to "implement a joint project to provide education regarding technology in the classroom with a state or state educational agency, local education agency, community-based organization, national nonprofit organization, or business, including minority business or a business located in HUB zones, as defined by the Small Business Administration."

Joint projects and partnerships to comprehensively address classroom technology needs are a practical, effective means to meet the technology needs of the nation's larger minority communities. This component of S. 196 encourages inclusiveness and the establishment of a wide base of community support and expertise.

HSIs, historically hampered by funding disparities, have come to depend on the combined strengths and added resources of such partnerships to successfully address issues ranging from adult workforce development and lifelong learning to precollegiate preparatory programs.

HSIs and other Minority-Serving Institutions already have established the foundation for forming effective partnerships to address technology disparities. S. 196 provides the funding and infrastructure support to capitalizes on the proven effectiveness of such partnership approaches in addressing the digital divide.

Leadership Development

S. 196 also will allow HSIs and other Minority-Serving Institutions to "provide leadership development to administrators, board members and faculty of eligible institutions with institutional responsibility for technology education." Historically under-funded HSIs can readily benefit from this investment in support of those leaders who are charged with the strategic direction and supervision of efforts to enhance technology infrastructure, training and outreach.

HSIs and other Minority-Serving Institutions recognize the critical role of leadership development in efforts to close the digital divide. For example, the Advanced Networking with Minority-Serving Institutions (AN–MSI) project includes a focus on assisting campus leadership in information technology training. AN–MSI is the result of a National Science Foundation grant to EDUCAUSE, a consolidation of the former CAUSE and Educom higher educational technology associations. A subaward was made to the Education, Outreach and training Partnerships for Advanced Computational Infrastructure (EOT–PACI).

EDUCAUSE established partnerships with HACU, the American Indian Higher Education Consortium and other associations and councils representing Minority-

Serving Institutions. Leadership development aspects of this ongoing project have included the involvement of Administrators of HSIs and other Minority-Serving Institutions at Seminars on Academic Computing and a recent Technology Summit.

The inclusion of leadership development in S. 196 is another example of the Act's potential for success by strategically addressing the nation's digital divide on so many fronts—from enhancing teacher skills in the classroom to supporting administrative leadership development on the college campus.

Conclusion

Clearly, HSIs and other Minority-Serving Institutions have the expertise, proximity and commitment to their students and communities to provide front-line leadership and support in the effort to close the information technology gap. However, these institutions cannot succeed without the support of Congress and its endorsement of a substantial investment in federal dollars.

S. 196 proposes a comprehensive approach to aggressively address the digital divide, targeting potential funding to those higher education institutions serving the largest concentrations of minority higher education students in those communities with the fastest-growing minority populations. S. 196 is a strategically sound, cost-effective response to a challenge the nation can no longer afford to leave unanswered.

The digital divide is not an empty buzzword, but an unfortunate reality in our nation. While all sectors of society are acquiring greater access to information technology and connectivity to the Internet, the gap between the better educated and those behind them is widening each year—not only in qualitative terms, but quantifiably as well.

The U.S. Department of Commerce series of reports—"Falling Through the Net," released in 2000, and "A Nation Online: How Americans Are Expanding Their Use of the Internet," released in 2001—document the divide between Hispanics and non-Hispanic whites and the nation as a whole. The 2000 report, the last reporting on household Information Technology (IT) use, tells us that more than one half of U.S. households have computers and more than four of every ten have Internet access. For Hispanic households, the numbers are only one-third and about two of every ten, respectively.

This same report documents that in 2000, Hispanics made almost 27 percent less individual use of the Internet than non-Hispanic whites. In the latest 2001 report, the gap grew to more than 28 percent. While computer and Internet access is slowly increasing for Hispanics, the digital divide between them and the rest of the nation's population is becoming wider.

Examining individual Internet use by age groups enables us to look at the traditional college-age population. In the 2000 report, Hispanics were 32.6 percentage points behind their non-Hispanic white counterparts (65 percent). The 2001 report, focusing on 18–24 year-olds actually in school or college, documents that Hispanics are about 20 percent less likely than non-Hispanic whites to have a home computer and almost 25 percent less likely to use the Internet at home.

This reports highlights the critical importance of this bill and the urgency of supporting our HSIs, because the gap between Hispanics and non-Hispanic whites lessens to 15 percent when one considers outside home use, which for these students overwhelmingly means school or college. The 15 percent gap is still large, but it is a sign of progress in the right direction. Similar patterns exist for Hispanics ages 3 to 17 years. The 2000 report shows substantially large gaps between non-Hispanic whites and Hispanics overall. The latest 2001 report underlines that Congressional action is necessary to bridge the widening digital divide for our youth by increasing their access to technology in the school setting.

HSIs are the most important national resource for the education and training of Hispanics and other disadvantaged students across the nation. This fact will only be magnified in the years ahead as the Hispanic population continues to grow faster than any other ethnic community in the country and reaffirms its crucial role in the economic and public life of the nation. Already, Hispanics make up the fastest-growing segment of the college-age population in this country. HSIs must be strengthened and expanded proportionate to the rapid growth of the populations they serve, so that our national economic prosperity and social structures are also strengthened. One of every three new workers joining the national work force today is Hispanic, and this will increase to one of every two workers before the year 2050, according to projections by the U.S. Department of Labor.

The changing nature of our economy demands that underserved and underrepresented but fast-growing populations be educated and trained at increasingly higher levels for the jobs and leadership roles of the "new economy." Notwithstanding the recent bursting of the dot-com bubble, the high-technology sector continues to

expand at the speed of human creativity. Thus, information technologies, telecommunications, and biotechnology, among others, require increasing numbers of workers with very high skills and advanced knowledge that only a quality higher education can provide.

S. 196 presents great opportunities for the U.S. Congress and the President to ensure that future generations of Hispanics and other disadvantaged populations do not remain stagnated at the bottom of America's educational ladder. We urge Distinguished Members of this Committee to support S. 196. Too much is at stake for our economy and for our national security to ignore this critical opportunity to provide our colleges and universities the tools they need to begin closing the digital divide.

Senator ALLEN. Thank you, Dr. Fernandez, for your insightful testimony and also your written testimony, as well.

Now I would like to hear from our good friend, Congressman Flake.

STATEMENT OF DR. FLOYD H. FLAKE, PRESIDENT, WILBERFORCE UNIVERSITY

Dr. FLAKE. Thank you very much. Thank you, Senator. Thank you for the invitation to come and to have this opportunity to speak on this particular issue.

Before beginning, I would like unanimous consent to introduce to the record the testimony of William H. Gray, III, our former colleague and former Whip of the House, who—it is submitted on behalf of the United Negro College Fund and inclusive of his testimony on S. 414. And for the record, if you will receive that, I would be happy to present it.

Senator ALLEN. That will be made part of the record. Thank you.

Dr. FLAKE. Thank you.

[The information referred to follows:]

PREPARED STATEMENT OF WILLIAM H. GRAY, III, PRESIDENT AND CEO, UNCF

Mr. Chairman, and Members of the Subcommittee, I am William H. Gray, President and Chief Executive Officer of the United Negro College Fund (UNCF). UNCF is America's oldest and most successful African American higher education assistance organization.

I am pleased to join my colleagues—representing the other minority higher education associations—to present UNCF's views and recommendations for S. 414, "the NTIA Digital Network Program Act." I want to thank Chairman Hollings for allowing this hearing to take place, and for his strong support of S. 414. Chairman Hollings is very familiar with the needs and challenges faced by South Carolina's eight HBCUs, four of which are UNCF member institutions.

Let me also commend Chairman Wyden for calling this hearing so that we could have the chance to address one of the most critical issues affecting the education of minority students in America. I want to also thank our home Senator, Senator George Allen, who as Governor helped move Virginia into the high tech era, and who represents the state where UNCF's national headquarters is located.

Finally, I want to applaud the leadership that Senators Cleland and Stevens have given to this important issue. We at UNCF believe that providing public and private sector support for the acquisition of technology infrastructure, faculty development, training and the integration of technology into the curriculum are among the most important challenges facing private HBCUs. We are especially indebted to Senator Cleland for his willingness to listen to the concerns of UNCF's member institutions, including those in the Atlanta University Center (AUC).

While we have not yet conquered the chasm that separates the college aspirations and opportunities for all of America's minority youth from their majority counterparts—we are faced with a simultaneous and equally daunting challenge. The "digital divide" threatens to deny minority students, our professors, and our institutions the competitive skills they need to overcome the remaining vestiges imposed by race and economic segregation in America.

The Department of Commerce's July 1999 report "Falling Through the Net—A Report on the Telecommunications and Information Technology Gap in America" first highlighted the economic and racial divide in the access of Americans to telephones, computers and the Internet. As then Secretary of Commerce Daley pointed out "(E)nsuring access to the fundamental tools of the digital economy is one of the most significant investments our nation can make." As important as these tools are at home and in our elementary and secondary schools, America's colleges and universities represent the last bulwark of the nation's defense against technological illiteracy. We can ill-afford to produce college graduates who enter the workforce without mastering basic computer skills and understanding how information technology applies to their work or profession.

Let me describe the two areas that I hope the Members of this Committee, and the United States Senate as a whole, will consider as they deliberate this legislation.

The Need for Enactment of S. 414

First, UNCF member institutions and other HBCUs enroll large numbers of poor students, whose parents are unable to help pay college costs. In fact, 50 percent of all UNCF students come from families with incomes less than $35,000. Almost 90 percent of all UNCF students receive some form of federal financial assistance, and 60 percent of UNCF students are first-generation college students. It is clear, then, that the confluence of these demographic factors make virtually certain that many UNCF students will have their first exposure to computers and to the Internet when they arrive on the college campus.

Second, for many institutions that enroll large numbers of minorities, making up the digital deficits at home and at school constitutes a real financial challenge. The inability of institutions to finance the acquisition of needed technology infrastructure creates another digital divide. Compared to other colleges, private Black Colleges have very small endowments and cannot fall back on sizeable numbers of wealthy alumni. The average endowment of UNCF schools for the 1998–1999 academic year was $22.229 million. Larger, well-financed institutions have greater access to the funding necessary to purchase technology, than do smaller, private colleges with fewer resources.

HBCUs, then, face a dual digital challenge—they enroll a large number of students who are admitted to college with the least pre-enrollment exposure and knowledge of technology and the Internet, and the institutions that admit them face certain financial challenges in overcoming these digital deficits.

UNCF schools illustrate the challenges we face as a nation. In August 2000, UNCF's testimony to the Web-based Commission, which I submit for the record, called attention to the plight of our students and member colleges:

- Only 15 percent of the 55,000 students attending UNCF member colleges and universities own computers;
- College students nationally were more than twice as likely to have access to a college-owned computer than their private, HBCU counterparts—one computer for every 2.6 students in higher education institutions nationally compared to one for every 6 students at UNCF colleges and universities;
- Seventy-one percent of faculty nationwide owned computers as compared to less than one-half of UNCF faculty;
- The number of network servers at UNCF colleges per 1,000 students is approximately one-half that of all colleges and universities nationally;
- Seventy-five percent of these servers, hubs, routers, and printers were obsolete or nearly obsolete and in need of replacement; and
- The rural and relatively isolated areas, in which many of these institutions are located, place an additional Internet access burden on those institutions.

Let me describe what UNCF has done to help meet this challenge.

UNCF is Addressing the Digital Challenge

In January 2000, UNCF announced a partnership with Microsoft, IBM, AT&T and other major corporations and launched an $80 million Technology Enhancement Capital Campaign (TECC). The campaign was designed to strengthen the technological capacity of each of the 39 member colleges and universities in three significant ways.

First, TECC strengthened the technology capacity through modernizing each institution's technology platform and gave every student and faculty member access to computers. As a result of this campaign, all UNCF colleges and universities meet certain minimum technology standards, including increased network capacity and

uniform systems that enable electronic learning among institutions. Technical support was given so that all wiring, equipment installation, and data migration and configuration of hardware—including system testing—has been properly accomplished. This created equity in opportunity by making the same technology available to students attending UNCF member colleges and universities as is now available to students at majority institutions.

Second, on-campus training is being provided to a core group of campus officials who will then train others in the operation of all equipment. TECC also includes a faculty development component to assist faculty in integrating information technology into the curriculum and to assist faculty members in strengthening their research and instructional techniques using technology.

Third, TECC is helping make technology more affordable for individual students and faculty. HBCU students, faculty, and staff can purchase computer hardware and software from major technology providers, such as Dell, IBM, Hewlett Packard and Microsoft, at discounted prices—as low as three hundred dollars—along with low-cost financing through UNCF's e-commerce web site, which was developed through a generous contribution of technical services from Electronic Data Services (EDS).

I am pleased to inform the Members of this Subcommittee that UNCF's TECC campaign is closing the digital divide on UNCF campuses. We have already exceeded our $80 million TECC campaign goal! Here are a few examples of the campus-based results of the TECC campaign:

- In Florida, where we have three member colleges—Bethune-Cookman College, Edward Waters College, and Florida Memorial College—UNCF provided $4,971,583 in technology funds. One example of the use of the funds is that Bethune-Cookman established a quality infrastructure for storage and distribution of applications and data.
- In North Carolina, there are six member colleges and universities—Johnson C. Smith University, Shaw University, St. Augustine's College, Barber Scotia College, Bennett College and Livingstone College. Here we have invested $10,858,475 in technology. With its portion of the funds, Johnson C. Smith University developed a print solution and a robust e-mail system.
- In Georgia, we have six UNCF colleges and universities—Clark Atlanta University, Inter-denominational Theological Center, Morehouse College, Morris Brown College, Spelman College and Paine College. The total invested is $15,155,069. At Clark Atlanta University, computer lab capability and access were enhanced, with improved security.
- In Virginia, there are two member institutions—St. Paul's College and Virginia Union University, where UNCF funded $1,983,539 in technology. As an example, Virginia Union University established a totally wireless campus and created mathematics computer labs for classroom teaching and accounting computer labs for teaching and student exercises.
- In Mississippi, there are two UNCF institutions—Tougaloo College and Rust College—that received a technology investment totaling $2,782,911. Tougaloo College wired the campus buildings and upgraded desktops from outdated models for faculty, staff and computer labs.
- In Texas, we have four member colleges—Paul Quinn College, Huston-Tillotson College, Jarvis Christian College and Wiley College. These institutions received from UNCF $3,967,664. With their share of the technology funds, Paul Quinn College provided laptops to all full-time faculty and network drops for faculty to use in the classrooms.

In addition, all 39 UNCF campuses have benefited from upgraded network infrastructures and increased access to technology for students, faculty and staff:

- UNCF institutions have received hardware, including 2,000 desktop computers, almost 1,500 network printers and more than 1,200 network servers, as well as hundreds of hubs, switches and network routers, courtesy of Hewlett Packard, Cisco, Lexmark, and Dell;
- The wiring of member institution campuses is completed—including over 3,800 network drops in learning centers and administrative and academic facilities and equipment installation and configuration; and
- Each UNCF member institution received 96,000 current versions of Microsoft software, including Windows 2000, Encarta Reference Suite 2000, Microsoft Office Suite 2000, and Encarta Africana 2000 courtesy of an "in-kind" gift from Microsoft.

For the record, Mr. Chairman, I am submitting the list of these contributors.

Our goal is to ensure that every student has a computer and knows how to use it and that every faculty member has a computer and has integrated technology into their curriculum. The results will be better prepared students ready for the technology age.

Notwithstanding this progress to date, there is a great deal more to be done to eliminate the digital divide.

The Federal Role in Closing the Digital Divide

Technology is no longer the wave of the future—it is the way of the present. Every student who lacks access to current technology risks falling further behind. We believe S. 414, and its companion House bill, H.R. 1034, provide a crucial and necessary vehicle for directing federal resources to the solution of an urgent problem.

S. 414 provides direct grants to eligible institutions, or consortia of eligible institutions: (1) to acquire hardware and software; (2) to build technology infrastructure, i.e. wiring, platforms and networks; and (3) to train institutional personnel to use both the software and hardware and to plan for the future use of technology. Based on UNCF's TECC campaign experience—what our institutions need more than anything is the funding to purchase the instrumentation and to prepare students and institutional personnel for its usage. S. 414 will help provide those resources.

S. 414 encourages partnerships with the private sector, while avoiding the creation of a barrier to institutional progress. UNCF has experienced great success in securing private sector participation in our TECC campaign. Major corporate donors have stepped up to the plate—contributing both cash and in-kind gifts. However, experience tells us the response has not been and will not be uniform. Therefore, we applaud S. 414's recognition of the need to waive the "matching" requirement for certain institutions. UNCF also commends the bill provisions that qualify private sector contributions made through organizations like UNCF to individual institutions as "matching" funds.

Finally, we urge the Committee to ensure, to the maximum extent possible, the equitable distribution of appropriated funds to the range of eligible institutions that will participate in the program. UNCF is available to assist you, Mr. Chairman, and Members of the Committee as you proceed with consideration of the bill.

Again, I want to thank the Subcommittee for inviting me to testify today, and to present the views of UNCF on this important legislation. I would be pleased to answer any questions you may have.

Dr. FLAKE. Thanks again for your consideration not only for an opportunity to speak, but the reality of understanding this critical need and the problem that we are facing. This afternoon, we realize that this is a pressing need for most Historically Black Colleges, Indian universities, as well as Hispanic universities as they struggle to try to be competitive with others.

I certainly want to thank you and others for providing leadership on this agenda and the for the persons that you have been able to include in the process, understanding that the majority of them are in positions to make sure that this bill passes.

Today's subject is not only a problem facing students, faculty, and administrators of the nation's Minority Serving Institutions. Technology deficits and limitations today are nothing, if not a harbinger, of the national crisis in education and commerce tomorrow. What is described by some as a digital divide is more like a gaping technological canyon that has far-reaching implications for communities across the nation. If this chasm is not closed, the nation will suffer untold consequences. Ultimately, our nation's competitiveness will be undermined.

Mr. Chairman, in ways technology and its availability on the nation's college campuses are Dickensian, "Tale of Two Cities," or rather the "Tale of Two Campuses."

On some college campuses, technology is available at every turn—wired buildings, equipped research laboratories, small buildings, "smart" buildings, online registration, distance learning,

"smart" cards, "smart" boards, and so many other tools of tomorrow that are functioning today.

On these campuses, students are able to communicate internally and externally with seamless ease and functionality. The world has really become a classroom for these students. The facilities are able to utilize technology and research projects that significantly accrue to the benefit of students, to the academic programs, and this privileged class of universities in general.

Even at an administrative level, these universities are better able to direct, attract resources, to report to the Federal Government, and to philanthropic donors. All of these accumulated advantages mount up like a limitless advantage for some, and an insurmountable disadvantage for others who are less prepared for modern collegiate needs.

On other campuses, those on the other side of the technology canyon, particularly those serving minorities, there is an embarrassment of technological poverty. To borrow again from Dickens, "these are the worst of technological times" for some campuses and their students; they are also the worst of times because technological tools are nominally available to everyone. In reality, students whose families often represent the proverbial "least of these" still find these tools out of their reach, even on college campuses.

S. 196 will immediately level the playing field for more American students and close this great canyon. It will allow more of the innate talent of students to shine without limitation as to where they matriculate or without respect to their socioeconomic settings of the home communities.

Indulge me for a moment as I describe the typical student at Wilberforce University. Over 95 percent of the students at Wilberforce are on financial aid. An overwhelming majority of Wilberforce University students are the first in their family to go to college. Students at Wilberforce are more likely to have attended urban high schools where the breadth and depth of the technological canyon are widest and deepest at the secondary level. They are unlikely to come from a home that possesses a computer or is connected to the Internet. Likewise, they come from communities that are also technologically underserved and under-invested.

What does this mean in practical terms? It means that, at every turn, at Wilberforce, despite our enormous success and our long history at placing students in competitive graduate programs and in viable professional settings upon graduation, we are constantly swimming upstream against the current of mitigating technological realities that could be overcome with significant infusions of capital in areas of technology.

It also means that there are multiple layers of complexities to this problem. At the University of Pennsylvania, for example, Taylor Hamilton, a second-semester freshman from Los Angeles, majors in business management studies in a new academic building that was recently completed, to the tune of $140 million. In this facility, every study room, every inch of the building, contemplates a wired, connected student existence. Taylor is only limited by his ability to imagine and to realize his own potential.

At the same time, Taylor has access to the best that money can buy, James Parker, a freshman at Wilberforce from North Philadel-

phia, majoring in business administration, with a 3.74 grade-point average, in his second semester, with the same research needs, the same desire to succeed as Taylor, is limited, despite the fact that he is the first person in his family to attend college.

Taylor and James are both African-American. But the technological realities confronting them are markedly different, solely based upon where they chose to attend college. The difference is that James' limitations are beyond his control and even beyond the ability of a small liberal arts college with a small endowment. Therefore, the exemption is a vital necessity for students like James.

James is not limited by his industry, his drive, or desire; rather, he is short-circuited by routers and servers and bandwidth forced to operate beyond their capacity. He is held in the technological past by antiquated software and hardware.

Grants that take into consideration the development of students, faculty, creative collaborative projects that enrich educational experiences and that modernize the enterprise functions of Minority Serving Institutions will go a great length toward increasing our national competitiveness by enabling needy students like James Parker, not only James Parker, but those diamonds in the rough-the Jane Morgans, the Joy Kirks, and thousands of other students who are now straddling the nation's higher education technology canyon.

Mr. Chairman and Members of the Committee, the thousands of students like James Parker employ you to look favorably upon this invaluable measure. I look forward to working with you and many of my former colleagues, both here in the Senate and on the House side, in ways that we might assure not only the passing of this legislation, but, assuming that it does pass, assuring that those institutions that have the least are able to participate by getting more, and, with that more, to create young people who have capability, who are trying to create a means by which this canyon is finally filled.

Wilberforce University could use the resources, because it does not currently have wireless. We have antiquated computers in every student's room. And as soon as one breaks down, with the limited staff and staff capability, we are unable to assure that even those computers will continue to function.

You stated early on that you discovered in your own research that the majority of these students do not even own a computer of their own. Mr. Chairman, it is vitally important that this legislation pass and that it pass now. Tomorrow might be too late. And if we continue in the trend that we are going, we will still contribute a number of young people to the socioeconomic lower ladder or allow them to fall into the canyon. It is up to you, to us, and to this Committee to move forward in a way that assures that we lose no more of our students.

I thank you for this opportunity and look forward to the day when we come back to celebrate the passage of S. 196.

Thank you very much.

[The prepared statement of Dr. Flake follows:]

PREPARED STATEMENT OF DR. FLOYD H. FLAKE, PRESIDENT, WILBERFORCE UNIVERSITY

Mr. Chairman, ranking Member Hollings, Members of the Committee, I wish to thank you for the opportunity to address the Commerce Committee this afternoon on one of the pressing issues facing Historically Black Colleges and universities (HBCU's) today. I wish to extend my deep and abiding thanks to you and to Senator George Allen for your leadership on this issue in the Senate.

Today's subject is not only a problem facing students, faculty, and administrators at the nation's Minority Serving Institutions (MSI's). Technology deficits and limitations today are nothing if not a harbinger of a national crisis in education and commerce tomorrow. What is described by some as a digital divide is more like a gaping technological canyon that has far-reaching implications for communities across the nation. If this chasm is not closed, the nation will suffer in untold ways. Ultimately, our national competitiveness will be undermined.

Mr. Chairman, in many ways, technology and its availability on the nation's college campuses are a Dickensian tale of two cities, or rather two campuses.

On some college campuses, technology is available at every turn. Wired buildings, equipped research laboratories, smart buildings, online registration, distance learning, smart cards, smart boards, and so many other tools of tomorrow are functional today.

On these campuses, students are able to communicate internally and externally with seamless ease and functionality. The world has really become a classroom for these students. Further, faculties are able to utilize technology in research projects that significantly accrue to the benefit of students, academic programs, and this privileged class of universities in general. Even at an administrative level, these universities are better able to direct and track resources and to report to the Federal Government and philanthropic donors. All of these accumulated advantages mount up like a limitless advantage for some and an insurmountable disadvantage for others who are less prepared for modern collegiate needs.

On other campuses, those on the other side of the technology canyon, particularly those serving minorities, there is an embarrassment of technological poverty.

To borrow again from Dickens, these are the worst of technological times for some campuses and their students. They are the worst of times because technological tools are nominally available to everyone. In reality, students whose families often represent the proverbial "least of these" still find these tools out of their reach even on college campuses. S. 196 will immediately level the playing field for more American students and close this canyon. It will allow more of the innate talents of students to shine without limitation as to where they matriculate or without respect to the socio-economic settings of their home communities.

Indulge me for a moment as I describe the typical student at Wilberforce University.

- Over 95 percent of the students at Wilberforce University are on financial aid.
- An overwhelming majority of Wilberforce University students are the first in their family to go to college.
- Students at Wilberforce are more likely to have attended urban high schools where the breadth and depth of the technological canyon are widest and deepest at the secondary level.
- They are unlikely to come from a home that possesses a computer or is connected to the internet. Likewise, they come from communities that are also technologically underserved and under-invested.

What does this mean in practical terms? It means that at every turn, at Wilberforce, despite our enormous success at placing students in competitive graduate programs and in viable professional settings upon graduation, we are constantly swimming upstream against a current of mitigating technological realities that could be overcome with significant infusions of capital in the areas of technology. It also means that there are multiple layers and complexities to this problem.

At the University of Pennsylvania for example, Taylor Hamilton, a second semester freshman from Los Angeles, majors in Business management, studies in a new academic building that was recently completed to the tune of $140 million. In this facility, every study room, every inch of the building contemplates a wired and connected student existence. Taylor is only limited by his ability to imagine and realize his own potential.

At the same time Taylor has access to the best that money can buy, James Parker, a freshman at Wilberforce University from North Philadelphia, majoring in Business Administration with a 3.74 grade point average in his second semester,

with the same research needs, the same desire to succeed as Taylor, is limited despite the fact that he is the first person in his family to attend college.

Taylor and James are both African American, but the technological realities confronting them are markedly different solely based upon where they chose to attend college.

The difference is that James' limitations are beyond his control and even beyond the ability of a small liberal arts college with a small endowment.

James is not limited by his industry, drive, or desire. Rather, he is short circuited by routers and servers and bandwidth forced to operate beyond their capacity. He is held in the technological past by antiquated software and hardware.

Grants that take into consideration the development of students, faculty, creative collaborative projects that enrich educational experiences, and that modernize the enterprise functions of Minority Serving Institutions will go a great length toward increasing our national competitiveness by enabling needy students like James Parker. Not only James Parker, but the Diamond Morgans, Joy Kirks, and thousands of other students who are now straddling the nation's higher education technology canyon.

Mr. Chairman and Members of the Committee, the thousands of students like James Parker implore you to look favorably upon this invaluable measure. I look forward to working with you and many of my former colleagues in any way that you might desire to ensure that we mutually empower the future of deserving students and their communities across the nation.

Senator ALLEN. Thank you, Dr. Flake, for your very compelling testimony, and I look forward to that day and would like for you to be there for that bill signing ceremony, all of you. Thank you so much.

Dr. McDemmond?

STATEMENT OF DR. MARIE V. MCDEMMOND, PRESIDENT, NORFOLK STATE UNIVERSITY

Dr. MCDEMMOND. Thank you and good afternoon, Senator Allen. You are, indeed, one of Virginia's favorite sons, and we thank you for cosponsoring this important legislation.

My name is Marie McDemmond, and I am in my sixth year as president of Norfolk State University. I would like to take you on a little background of Norfolk State University and its students and to see what we would do with the money, if allocated by Congress.

First of all, Norfolk State University is a comprehensive public university of higher education founded in Norfolk, Virginia, with 7,000 students. Norfolk State was founded as part of Virginia Union University in 1935. And several years later, we became a state-supported institution as the lower division of Virginia State University in Tidewater. Norfolk State did not become its own four-year university granting its own four-year degrees until 1969, and became its own university in 1979.

This is very important when you look at the size of Norfolk State's endowment, which is only $7 million. If you look at that we did not give our own degrees until that time, you can see that we would have difficulty in garnishing some of the higher paid alumni who are able to influence corporation and foundation giving to large endowments at HBCUs.

In addition, I would like to tell you a little bit about Norfolk State's students. Over 89 percent of our students receive some form of financial aid. $25,000 is the average family income for those students. Norfolk State University has worked hard to make sure that our students continue to qualify for federal financial aid. We have lowered the default rate since I became President, in mid 1997,

from 27.1 percent to 6 percent. We have done so despite all of the borrowing that our students have to do. We are the least expensive of Virginia's public institutions in tuition, and the second least expensive in fees. But still, 80 percent of our students graduate owing more than $15,869. This is a very large amount for people with the profile that we serve.

The history of Norfolk State is critical, also. As you might remember, the 11 southern states have been reviewed over the last 35 years by the U.S. Department of Education to determine the historical equity in funding between HBCUs and the majority institutions in each of the 11 southern states. Virginia was found to be out of compliance in equity for many times, and it was not until November 2001 that we signed the Office of Civil Rights Accord. That Office of Civil Rights Accord noted that Norfolk State University was severely delinquent in its computer technology and its computer wiring. They authorized, or they asked, Virginia to fund about $4 million in computer wiring to bring Norfolk State University up to par just on the academic side of its house in technology. Only 1 million of that 4 million, since 2001, has been able to be funded by the Commonwealth. So already we were inequitable in what we had as computer funding, and even the amount to bring us up to equity has not been provided.

On the side of the house that we have student services, the dormitories, none of our dormitories are wired. We do not have computers in any students' rooms, and we do not have a general computer lab in the dorm. This greatly handicaps our students when they come back from class. And with over 50 percent working, when they come back, they cannot reinforce their academic learning in either technology or do research papers using the Internet because lack of wiring in our dormitories.

Now, what would we do if we are provided the funds through S. 196? We have two tremendous initiatives I would like to share. One is our research and innovation to support the empowerment center. We believe that RISE Center can create a network among HBCUs and their respective communities and businesses, as Dr. Fernandez stated, to aggregate the economic potential emerging from expanded broadband access. The facility has the potential to increase business partnerships and to expand minority training and management in technology and infrastructure.

We have put together and leveraged almost $100 million to build this complex center, which takes advantage of our location in a hub zone, an enterprise zone, and an empowerment zone, as well as a HOPE 6 community. Our community as well as our students at Norfolk State need to be educated on technology.

We also have structured an Institute for Information Assurance. Part of the OCR accord that was struck in November of 2001 authorized the creation of a masters in computer science. One of the tracks in that masters program will be information assurance. In recognition of the increasing need to protect the nation's critical infrastructures and information and information systems, Norfolk State is working hard to make this information assurance structure institute become a reality.

We have presented to the National Security Agency, in the fall of 2000, a plan to provide us with the goals to become a center for

information assurance. There are 36 such centers throughout the United States in higher education institutions. None are at Minority Serving Institutions. Norfolk State wants to be the first to do that so that we can address the United States' needs for trained information assurance professionals by encouraging students, especially those from under-represented minorities, to pursue degrees in information assurance and related fields as well as providing support for these students to do so. We want to expand and enrich undergraduate curriculum offerings with courses in computer and network security, as well. We, at Norfolk State, want to position ourselves, therefore, as a leader in information assurance research.

As we go forward to look at all of the issues that Norfolk State would do, we know that we have to use the resources of this bill to help us do wireless. Wireless is the wave of the future. We currently have no wireless environment on our campus. We are $4 million behind even in wired technology.

So we hope that as you proceed to provide these assurances for us and to really enable us to get the funding needed for this bill, we will be able to add to the national security infrastructure of this country, particularly considering our location in Norfolk, Virginia.

[The prepared statement of Dr. McDemmond follows:]

PREPARED STATEMENT BY DR. MARIE V. MCDEMMOND, PRESIDENT, NORFOLK STATE UNIVERSITY

Greetings

Good afternoon, Chairman McCain, Chairman Hollings, one of Virginia's favorite Sons—Senator Allen, Senators Miller and Stevens and other distinguished Members of this Committee on Commerce, Science and Transportation.

Introduction/Background

My name is Marie V. McDemmond. I am the President of Norfolk State University, and I also serve as a member of President Bush's Advisory Board on HBCUs, a member of NAFEO's Board of Directors and as Virginia's Civilian Aide to the Secretary of the Army.

NORFOLK STATE UNIVERSITY is a comprehensive public institution of higher education in Norfolk, Virginia, and the largest of the five Virginia Historically Black Colleges and universities (HBCUs) with 7000 students. NSU opened its doors in 1935 as the lower division of Virginia State University in the Tidewater region of Virginia. Norfolk State became its own named college in 1969 and a university in 1979. The university has remained steadfast in its commitment to provide an affordable, high-quality education to an under-served population in its community, its state and the nation.

- The percentage of undergraduate students receiving financial aid at Norfolk State University is 89 percent.
- These students have an average median family household income of less than $25,000.
- Since my presidency of Norfolk State University began in mid-1997, we have worked hard to ensure that our students remain eligible for federal financial aid and, with improved management, have lowered our direct student loan default rate in five years from 27.1 percent to 6.0 percent.
- We have done so despite the increasing number of students who must borrow to fund their education. Eighty percent (80 percent) of our graduating seniors had an average debt burden of $15,869 in 2000–2001.
- Norfolk State University's progress is further exemplified by our increases in retention and graduation rates. Changes in our admissions standards have improved our freshmen profile. The outcome of those changes during the previous five years is evident in an increase in the average SAT of 13 percent and an increase in the average high school grade point average of 12 percent.
- In five years, our freshmen retention rate has increased from 5 percent to 71 percent, which now is consistent with our national peers. Additionally, gradua-

tion rates have increased substantially. Within five years, the freshmen 6-year graduation rate has increased by 7 percent. The increase from 20 percent to 27 percent for bachelor degree recipients is only one of several important steps NSU is taking to ensure student success.

Educating Students in Science and Technology

Norfolk State University currently serves a unique mission in educating a significant number of African-American professionals in the sciences and in technology.

- Within the last decade, Norfolk State University has increased the number of students enrolled in its computer science programs by 116 percent (from 197 to 425) and increased the number of students enrolled in computer technology by 32 percent.
- Norfolk State University was one of the first universities to offer its students in non-technical fields the Virginia Internet-based Tek.Xam technology assessment exam proctored in its on-campus computer laboratories.
- In Fall 2001, NSU added the Skills Assessment Manager (SAM) to enhance our students' proficiency in technology. SAM 2000 is an interactive performance-based software system developed by Course Technology. Students complete the exam online and their scores are generated automatically. The program assesses each student's abilities to ensure that all NSU graduates can use technology to solve problems, collect data, manage information, communicate with others, create effective presentations, and use information to make informed decisions.
- In recent years, the number of student computers in campus labs at NSU has increased from 600 to over 1,400 and all students have e-mail accounts and take computer competency exam. Every full-time faculty member has a desktop computer with Internet access.
- In conjunction with over 100 Northern Virginia firms in Virginia's High Tech Partnership, Norfolk State is significantly increasing the number of minority interns and permanent hires in technology related fields of employment and has placed over 60 students in technology related internships over the past three summers.
- NSU is also providing certifications in CISCO systems technologies and is partnering with the Small Business Administration and Empowerment 2010 to strengthen the business community's capacity to absorb new technology and know-how.

Economic Development Initiatives—Rise

NORFOLK STATE UNIVERSITY continues to strive to attract new businesses to the surrounding community and is formulating plans to capture the economic benefits of our location in an **Enterprise Community, Empowerment Zone, HUBZone and Hope VI Community**. A public private partnership has been formed to build a two-phased Research and Innovation to Support Empowerment (**RISE**) Center. This center will support a complex technology development system within a bridging framework. **RISE** will be a self-sustaining facility that will act to spur economic development in the Enterprise Zone, Empowerment Zone, HUBZone and Hope VI area surrounding our campus. The Center will promote technology development, business formation, educational and research opportunities and workforce development. In the second phase of development, the **RISE** project includes a University Laboratory School with major educational focus on Science, Mathematics and Technology for students K–6. The private sector indicates that the **RISE** Center can create a network among several HBCUs and their respective communities and businesses and aggregate the economic potential emerging from expanded bandwidth and access. The facility has the potential to increase business partnerships and expand minority training and management in technology and its infrastructure.

We have leveraged approximately $100 million in state funding through Virginia's recent General Obligation Bond referendum, empowerment zone funding, city of Norfolk infrastructure funding and private partnership funding to make the RISE Center complex a reality within the next two years.

Centers of Excellence—Eternal Funding

Norfolk State University believes in focusing its energies on its academic strengths. To that end we have carved out Centers of Excellence. Two of these centers directly relate to the university's strengths in math, science and technology: the

Bringing Science and Education Together Laboratory (B.E.S.T. Lab) and the Center for Materials Research.

B.E.S.T. Laboratory

The B.E.S.T. laboratory operates cooperatively between the School of Education and the School of Science and Technology. Projects involve fundamental and applied research, integration of technology in education, and innovation for curriculum development. Students and faculty engage in modeling chemistry, atmospheric science, and science education research with state-of-the-art equipment and software. It has been proven over and over again that teaching professionals in K–12 must be truly comfortable teaching math and science concepts before they can excel in transferring their knowledge in math and science to their students. Using this concept and in partnership with NASA Langley's Research Center, NSU has hosted a series of summer pre-service teaching institutes and national conferences. These programs aim at increasing the ability and confidence of current and future teachers, who plan to teach at minority serving schools, to teach math and science. The pre-service teacher program, funded at almost $3 million over the past five years has been so successful, that this past summer NASA expanded its funding to include NASA Marshall, with Oakwood College as the cooperating HBCU, and NASA Stennis, with Xavier University of Louisiana as the cooperating institution. It is our intention to use these same cooperative concepts in our university's proposed laboratory school.

Center for Materials Research

NSU believes in capitalizing on its internal strengths and leveraging external dollars whenever possible. In 1994, NSU received a five-year $10 million grant from the Department of Energy and a three-year $1.2 million grant from NASA Langley to start the Center for Materials Research and develop a Masters program in Materials Science. The Center for Materials Research, which has received more than $16.4 million in Federal funding support over the past five years, now conducts state-of-the-art research in nanotechnology, polymer network switches, organic photovoltaic materials for solar cells, powder laser materials for military and security applications, photon materials for huge data storage, and other optical or communications applications. This NSU Center of Excellence demonstrates, if HBCUs are provided the capacity-building resources, we can and will succeed. Since July 1, 2002, NSU has increased its external funding to its School of Science and Technology by adding over $7 million to continuing grants and contracts to the $11.5 million the schools already had in external funding this year, a 61 percent increase.

Institute for Information Assurance

In recognition of the increasingly important need to protect the nation's critical infrastructures, information, and information systems, NORFOLK STATE UNIVERSITY recently established another center of excellence, the Institute for Information Assurance (IA) Research. NSU has been in discussion with the National Security Agency on this since the Fall of 2000. The principal goals of the institute are to:

- Address United States needs for trained information assurance professionals by encouraging students, especially those from under-represented minorities, to pursue degrees in information assurance related areas and by providing support for them to do so;
- Expand and enrich undergraduate curriculum offerings with courses in computer and network security as well as train information technology professionals at an accelerated pace to assure information security; and
- Position Norfolk State University as a leader in information assurance research and education by preparing the University for certification as a National Security Agency Center of Academic Excellence in Information Assurance Education. Presently, there are 36 such centers nationwide, working in this very crucial national security area. **None, however, are located at an HBCU**.

By its very nature, information assurance requires countries to develop their own talent in this area, a critical issue now considering the number of H1–B VISAS personnel currently working in technology fields in the United States. With the appropriate financial support, we expect this new center to provide substantial benefits in this regard to the United States, the Commonwealth of Virginia, and the Hampton Roads Region.

Federal Support

This year after a mandate from the U.S. Department of Education, Office of Civil Rights (OCR), an Accord between Virginia and the Federal Government was signed in November 2001. Based of the guidelines of the Accord, Norfolk State University

received enhanced funding from the Commonwealth to begin structuring a master's degree, added to our ABET accredited bachelors in computer science (a program started many years ago through Title III funding); and, currently we are adding both bachelors and masters degrees in electronics and optical engineering.

NSU also received funding from the National Science Foundation for the Louis Stokes Alliance for Minority Participation, through the Washington, Baltimore, and Hampton Roads AMP. In addition, the University receives support from NSF through its Historically Black Colleges and Universities Undergraduate Program (HBCU–UP). These outstanding National Science Foundation (NSF) programs have produced over 200,000 minority professionals with degrees in math, technology and the sciences and are worthy of increased NSF funding. Building upon its strengths in computer science and electronics and optical engineering will help position Norfolk State University to excel in the education of African Americans in mathematics, science and technology.

Skilled Workforce

There is a high demand in the United States today for skilled, knowledgeable workers. Our most important businesses and industries are not just computer and electronics firms, but also advanced, information-driven companies with an educated and diverse workforce, a workforce of people who prize their diversity and will be successful because of it. However, there is a national shortage of information and communication technology professionals, and as minority-serving institutions we can educate our *own* to fill this gap. It is critical that our government takes an active role in the installation, development and use of information and communication technologies across economic as well as geographic lines so that America will have its own diverse trained workforce.

NSU's vision is in place, but funding during these very uncertain economic times will remain a critical issue if we are to train and educate the workforce needed in this decade and beyond. Over 175,000 foreign nationals have come to our country in efforts to fill quality, high paying jobs in science and technology, mainly because our own workforce does not possess the skills and training necessary to fill these essential jobs. It is critical to our national interests and to the economic stability and security of this nation that we also direct our limited resources to provide funding to Minority Serving Institutions that already have a record of success in educating our minority citizens in science and technology and have an ever-increasing student body that is patriotic and eager to learn. Our nation's minorities and underserved populations are a vital part of the first generation of a new and glorious millennium of growth and development for our country—a country that needs everyone's full participation if America is to retain its competitive and military strength worldwide.

Unique Challenge

Minority-serving institutions have a unique challenge in educating students with little or no preparation for the work world they are about to enter. Many of the tasks we take for granted in the workplace today (sending an e-mail or using the Internet) are the by-products of years of educational and cultural experience. Each new generation has learned how to accomplish these tasks, adapted their skills and made their processes better and better. Today we are reorganizing and rebuilding business and industry and even whole national economies, and in that process we are also redistributing knowledge and the way we communicate knowledge.

Over the course of our nation's history, the view of higher education as a central element of our economic and social well-being has been widely acknowledged. Thomas Jefferson wrote of this concept when he said, " I think by far the most important bill in our whole code is that for the diffusion of knowledge among the people. No other sure foundation can be devised for the preservation of freedom and happiness." Jefferson's world, two hundred years ago, was a vastly different place than the world today. However, our increasing dependence on knowledge and information continues to recognize the importance of Mr. Jefferson's words and acknowledges the importance of colleges and universities as the generators of that knowledge and information.

Conclusion

For more than two decades, enrollment at public colleges and universities has gradually risen; more than 77 percent of higher education is provided in public colleges and universities today. Projections for the coming decade show the total climbing further. Much of the recent growth has been among historically underserved and under-represented populations—racial and ethnic minorities, first generation college students—many from lower socio-economic backgrounds—who bring a number of unique academic and co-curricular needs to our campuses. We must educate Amer-

ica's own to fill the high tech jobs of this century. The future demands that all institutions have the technological resources to prepare these students and that these students have the resources to finance their educations.

This Committee is considering legislation (S. 196)) that would provide a pool of funds—$250 million—through the Digital and Wireless Network Technology Program Act of 2003—for Minority Serving Institutions across the country. As you continue your decision-making processes, I ask that you consider how critical these funds will be in efforts to strengthen the technology capabilities of minority-serving institutions. This legislation must be viewed as an investment and an incentive for us all in providing digital capacity for all of the communities and the students we serve. The work of your Committees in areas such as Title III funding, student financial aid and the reauthorization of the Higher Education Act ultimately determines how responsive the United States will be to our own future workers and leaders. We understand the magnitude of many priorities you face each day and appreciate your thoughtful consideration of this important legislation here today.

As the president of a public institution of higher learning and a historically black university, I want to ensure that the students we serve are "Achieving with Excellence" and that each one has the opportunity to be as competitively qualified as any other college educated student in Virginia and the nation. Minority-serving institutions must be assisted in overcoming the challenges facing them today so that they can make them the opportunities of tomorrow for all Americans regardless of their heritage or socio-economic status.

I want to thank this Committee along with Senator Allen for all of your efforts on behalf of HBCUs and Minority Serving Institutions across America. I also want to thank you for having me here with you today. The education of our next generation of leaders must be a team effort, and **we must all be a part of that team.**

Senator ALLEN. Thank you, Dr. McDemmond.

Dr. Monette?

STATEMENT OF DR. GERALD "CARTY" MONETTE, PRESIDENT, TURTLE MOUNTAIN COMMUNITY COLLEGE

Dr. MONETTE. Thank you, Senator Allen and Members of the Committee for inviting me to testify today.

My name is Gerald "Carty" Monette, and I am honored to be here as spokesperson for the American Indian Higher Education Consortium and also as President of Turtle Mountain Community College, which is located in North Dakota on the Turtle Mountain band of Chippewa Reservation.

On behalf of this nation's 34 tribal colleges and universities, I want to express our strong support for S. 196. We commend you, Senator Allen, and other Members of the Committee, including Senators Conrad Burns, Byron Dorgan, John McCain, and Daniel Inouye, for their commitment to serving tribal colleges and other Minority Serving Institutions.

American Indian tribal colleges are young, geographically isolated, and poor. None of our institutions is more than 35 years old. Most are located on Indian reservations in the Great Plains, the Southwest, the Great Lakes, in areas the Federal Government defines as "frontier" or extremely remote. Three of the five poorest counties in America are home to tribal colleges, where unemployment rates range from 50 to 75 percent. Most tribal colleges receive no state funding, and the Federal Government, despite its trust responsibility and treaty obligations, does not consider funding of American Indian higher education a priority.

For Fiscal Year 2004, the President's budget, if enacted, would actually cut institutional operations for reservation-based tribal colleges to a level $4 million below the FY–02 level. That makes us the most poorly funded institutions of higher education in the coun-

try. Yet each year we provide educational opportunity to 30,000 or more American Indian students, many of whom have no other access to higher education.

To be sure, America suffers from a serious divide. It is a division based largely on income and location, and more often than not, tribal colleges are on the wrong side of the divide. Tribal colleges are determined to cross the divide, but barriers exist.

Most of our reservations lack basic infrastructure. On most reservations, less than 50 percent of homes on reservations have telephones, compared to 95 percent nationally.

Less than 10 percent of American Indian households have computers, compared to about 50 percent of white Americans, 25.5 percent of Hispanics, and 23 percent of African-Americans.

No more than 8 percent of all American Indian homes have access to the Internet.

Tribal colleges struggle to hire and retain technicians. Due to operational funding challenges, annual starting salaries for faculty can be as low as $21,000, or at least two times below industry averages.

For adequate Internet-based data and information sharing, most universities require at least DS–3 connectivity. Only one tribal college currently has funding for DS–3, but, I am proud to say, that through a concerted effort of all tribal colleges, despite our remoteness and poverty, have achieved broadband Internet connectivity for our campuses generally through multiple T–1 lines. This is a significant, though often under-appreciated, achievement, and it is a tremendous change from just a few short years ago when some tribal colleges had only one computer connected to the Internet through dial-up access.

Despite the challenges before us, many tribal college presidents and faculty believe that technology represents a tremendous digital opportunity. Over the past few years, we have developed a plan similar to the technology plan you developed, Senator Allen, while you were governor of Virginia. We call our plan the "Tribal College Framework for Community Technology," a framework of strategic partnerships, resources, and tools that will help us create locally based economic and social opportunities through information technology and use of the Internet.

Today, all tribal colleges are using technology to grow, meet our needs, serve our communities, and build a framework of opportunity for our children. Some examples that we currently are involved in and that we would like to see expanded in the bill include a wireless backbone project to provide highspeed connectivity to remote institutions and their satellite campuses where fiberoptic cables may never be cost effective. We are piloting state-of-the-art broadband and wireless backbone technology at four tribal colleges, including Turtle Mountain Community College.

Through this innovative and cost-effective effort, our colleges are weaving a wireless web of connectivity around our reservations, connecting institution sites, tribal offices, and K–12 schools to one another and the Internet through a highspeed backbone running between the college and existing Internet access points of state university systems.

The American Indian Higher Education Consortium is partnering with other Minority Serving Institutions and the extensive EDUCAUSE network on the Advanced Networking with Minority Serving Institutions, AN–MSI, project. The project is designed to improve networking architecture, improve Internet connectivity in remote areas served by MSIs, assist college presidents and administrators in improving our knowledge of technology and improved technical support through collaboration.

Through AN–MSI's limited funding, we have been able to achieve incredible results, including the above-mentioned wireless project, largely because we have worked to develop a strong network of technical expertise within the tribal college system and because we leverage this funding to the maximum extent possible.

During the 108th Congress, we will be pleased to work yourself and your colleagues to ensure that technological opportunities are within our reach. We are particularly pleased, Senator Allen, with your legislation, because it would house its important program within the National Science Foundation.

And again, we strongly support S. 196. My testimony includes a number of discussion points, which I respectfully refer to the Committee's staff.

In closing, I will reiterate that the tribal colleges are committed to working with the Congress, the National Science Foundation, and others to move forward in a new age of discovery and knowledge. At the same time, we would like to work with private industry to bring offshore information technology jobs home to the United States. We are committed revitalizing our communities and America's economy through entrepreneurship. We are committed to working with you, Senator Allen, to build a bridge of technological opportunity across our vast nation.

Thank you.

[The prepared statement of Dr. Monette follows:]

PREPARED STATEMENT OF DR. GERALD "CARTY" MONETTE, PRESIDENT, TURTLE MOUNTAIN COMMUNITY COLLEGE

Mr. Chairman and distinguished Members of the Committee, thank you for inviting me to testify today. My name is Dr. Gerald Monette. I am honored to be here as spokesperson for the American Indian Higher Education Consortium and as President of Turtle Mountain Community College, which is located in north-central North Dakota on the Turtle Mountain Band of Chippewa Reservation.

On behalf of this nation's 34 Tribal Colleges and Universities (TCUs), I want to express our strong support for S. 196, the Digital and Wireless Network Technology Program Act, sponsored by the Honorable George Allen (R-VA). We commend Senator Allen and his colleagues on the Committee—in particular, Senators Conrad Burns, Byron Dorgan, John McCain, and Daniel Inouye—for their commitment to working with tribal colleges and universities as we strive for educational excellence and equality of access.

For this afternoon's hearing, I have organized my testimony in three parts: (1) brief history of the tribal college movement; (2) background on technology in Indian Country and strategies the tribal colleges have taken to bring new technological opportunities to our people; and (3) legislative recommendations for the Committee's consideration.

The Tribal College Movement

American Indian tribal colleges are young, geographically isolated, and poor. None of our institutions is more than 35 years old. Most are located on Indian reservations in the Great Plains, Southwest, and Great Lakes, in areas the Federal Government defines as "frontier," or extremely remote. Three of the five poorest counties in America are home to tribal colleges, where unemployment rates range from 50

to 75 percent. Most tribal colleges receive no state funding and little funding from our tribal governments. Our tribes are not the handful of wealthy gaming tribes located near major urban areas; rather, they are some of the poorest governments in the nation. And the Federal Government, despite its trust responsibility and treaty obligations, has, over the years, not considered funding of American Indian higher education a priority. For Fiscal Year 2004, the President's budget, if enacted, would actually cut institutional operations for reservation-based tribal colleges to a level $4 million below the FY03 level. This would result in an appropriation of only about one-half of the authorized amount, or little more than $3,500 per full-time Indian student. That makes us the most poorly funded institutions of higher education in the country.

Yet, each year we provide educational opportunity to 30,000 or more American Indian students, many of whom have no other access to higher education. We are increasing retention and attainment rates from Head Start to graduate school, strengthening tribal governments, creating jobs, developing reservation economies, and bringing the promise of technological access to rural America.

Technology in Indian Country: Barriers & Successes Barriers to Technology

We believe that technology will help tribal colleges and tribal communities overcome current inequities and could hold the key to our future success. To be sure, this country suffers a serious divide. It is a division based largely on income and location. But to tribal colleges, information technology represents a tremendous "digital opportunity."

Today, information technology is an integral part of teaching, learning, and research in higher education. Tribal colleges and other Minority Serving Institutions, which are generally the nation's poorest and most isolated institutions, have the most to gain—or lose—in this new technological revolution. We must, therefore, develop strategies to ensure that our institutions have adequate technology infrastructures and that our students, faculty, and communities have the capacity to use technology to expand their knowledge, improve their daily lives, and fully participate in this nation's prosperity.

Tribal colleges are determined to move forward, and we have made remarkable progress, but barriers still exist. Most of our reservations lack basic infrastructure, and our colleges lack staff, hardware, and software that is taken for granted at most mainstream institutions. For example:

- **Telephones:** Less than 50 percent of homes on reservations have telephones, compared to 95 percent nationally.
- **Home Computers:** Less than 10 percent of American Indian households have computers, compared to about 50 percent of white Americans, 25.5 percent of Hispanics, and 23 percent of African Americans;
- **Home Internet Access:** No more than 8 percent of all American Indian homes have access to the Internet;
- **Trained Technicians:** Tribal colleges struggle to hire and retain technicians. Due to operational funding challenges, annual starting salaries for faculty can be as low as $21,000, or at least two times below industry averages.
- **Industry Partnerships:** Tribal colleges have not yet established the kind of mutually beneficial relationships with key industries that lead to economic opportunity, relevant academic and training programs, and ultimately, prosperity.
- **TCU Connectivity:** For adequate Internet-based data and information sharing, most universities require at least DS–3 connectivity. Only one tribal college currently has funding for DS–3 or higher, but I am proud to say that through a concerted effort, all tribal colleges, despite our remoteness and poverty, have achieved broadband Internet connectivity for our campuses, generally through multiple T–1 lines. This is a significant, though often underappreciated, achievement, and it is a tremendous change from just a few short years ago, when some tribal colleges had only one computer connected to the Internet through dial-up access!

TCU Successes in Technology

Despite the challenges before us, many tribal college presidents and faculty believe that technology represents a tremendous "digital opportunity." Just a few years ago, a group of us stared into the growing "digital divide" and decided to try to chart a new course. We embarked on a journey toward a "Circle of Prosperity," a place where tribal traditions and new technologies are woven together to build stronger and more sustainable communities.

Similar to Senator Allen's technology and higher education efforts while Governor of Virginia, the tribal colleges developed a dynamic and broad-based strategic technology plan to guide our collective efforts. We call our plan the "Tribal College Framework for Community Technology," a framework of strategic partnerships, resources, and tools that will help us create locally based economic and social opportunities through information technology and use of the Internet. Today, all of the tribal colleges are using technology to grow, meet our needs, serve our communities, and build a framework of opportunity for our children:

Wireless Backbone Project: To provide high-speed connectivity to remote institutions and their satellite campuses (where fiber optic cables may never be cost effective), we are piloting state-of-the-art wide-band wireless backbone technology at four tribal colleges, including Turtle Mountain Community College. Through this innovative and cost-effective effort, the colleges are weaving a wireless web of connectivity around our reservations, connecting institution sites, tribal offices, and K–12 schools to one another and the Internet through a high-speed backbone running between the college and existing Internet access points or state university systems. Goals of this new technology use are to enable each TCU to acquire and sustain affordable high-speed broadband connectivity, and then to build a TCU access grid that will weave a common web around all of the colleges and Indian Country. At the same time, we will be establishing collaborative relationships with people and institutions worldwide.

Distance Education: Through the Internet and other information technology applications, all but five tribal colleges offer technology-mediated education. An expanding ability to network with other colleges, universities, and tribal institutions is enabling the colleges to share knowledge beyond reservation boundaries and bring to their communities technology and information that can be transferred to support community and economic development. For example, Bay Mills Community College, located in a refurbished fish plant in Michigan's Upper Peninsula, is using technology and distance learning to deliver higher education to all 11 tribes in Michigan and to people in 17 other states, from Florida to Alaska.

Virtual Library: Through our virtual library initiative—a partnership including AIHEC, the University of Michigan's School of Information (see *www.communitytechnology.org*), IBM, and the W.K. Kellogg Foundation—the tribal colleges are beginning to develop an Internet-based library designed to enhance the meager library resources traditionally available in Indian Country. The virtual library, which uses open source software, has been installed at nearly every tribal college. Each college has a locally controlled library web site, which: (1) provides student and community access to local TCU library and curricula resources; and (2) interfaces with a much larger AIHEC virtual library data base of commonly-available and licensed resources (i.e. national and international education journals).

Already, the virtual library has made a difference in the accreditation status of at least five tribal colleges. Last year, the National Science Foundation awarded AIHEC a planning grant to collaborate with NSF's National Science, Mathematics, Engineering, and Technology Education Digital Library community. Unfortunately, funding for the AIHEC virtual library will expire in June 2003. Without additional funding, this valuable resource may be forced to shut down.

AN–MSI: Through a $6 million 4-year grant from the National Science Foundation to EDUCAUSE, AIHEC is partnering with other MSIs and the extensive EDUCAUSE network on the "Advanced Networking with Minority Serving Institutions" (AN–MSI) project. (*www.anmsi.org*) The project is designed to improve networking architecture; improve Internet connectivity in remote areas served by MSIs; assist college presidents and administrators in improving our knowledge of technology; and improve technical support through collaboration (i.e. remote technical support).

Through AN–MSI's limited funding, we have been able to achieve incredible results, including the above mentioned wireless project, largely because we have worked concertedly to develop a strong network of technical expertise within the tribal college system and because we leverage this funding to the maximum extent possible.

A number of initiatives are currently underway, including vitally important information security support and education projects. However, AN–MSI's funding is also set to expire this year. If additional funding is not secured for this project, the Federal Government's only cross-community collaborative technology initiative for Minority Serving Institutions will cease to exist.

Legislative Recommendations

During the 108th Congress, we will be pleased to work with Senator Allen and his colleagues to ensure that technological opportunities are within our reach. En-

actment and funding of S. 196, the Digital and Wireless Network Technology Program Act, will represent significant steps forward in our efforts to develop and use technology in a manner consistent with our missions and tribal communities and, at the same time, in a manner that ultimately will advance national—and global—prosperity and expand the frontiers of knowledge.

We are particularly pleased that Senator Allen's legislation would house its important program within the National Science Foundation, an agency committed, in Director Dr. Rita Colwell's words, to "enabling the nation's future through discovery, learning, and innovation."

Although we strongly support S. 196, AIHEC would like to raise the following discussion points:

1. **Purpose and Activities Supported:** To avoid inconsistency and confusion in the bill's implementation, we respectfully urge the Committee to carefully examine sections 2 and 3 of the bill to ensure that the language clearly reflects the sponsors' intent. According to section 2, a primary purpose of the bill is to strengthen MSI capacity to provide instruction "in digital and wireless network technologies" However, section 3 could be interpreted to permit funding of virtually any educational services, so long as the service is in preparation for any degree or certificate in any accredited program. We ask that the Committee consider narrowing this section to focus on education and training programs in emerging technologies, advanced networking, information and communications technology, or capacity building to succeed in this type of program of instruction. We would be happy to provide written recommendations, if the Committee desires.

2. "**Indians into Technology" Program:** We urge the Committee to consider amending S. 196 to include a provision establishing an "Indians into Technology" program. This proposal is based on a similar and highly successful program created by Congress in the mid-1970s to help address the critical need for medical professionals from and working in Native communities. Through the innovative "Indians Into Medicine" (INMED) program, which began at the University of North Dakota-Grand Forks (*http://www.med.und.nodak.edu/depts/inmed/*), American Indian students receive vitally needed educational and personal support from elementary through professional school. INMED includes summer sessions for students from elementary school through college; junior and senior high school bridge programs; a tribal college bridge program; summer medical school preparation program for college juniors and seniors and recent graduates; and ongoing educational and personal support programs for medical and graduate school students.

Because of similarities in demographics and need, a similar comprehensive education and support program could significantly impact efforts to develop and maintain an American Indian information technology workforce.

Under our proposal, isolated and underfunded American Indian tribal colleges could address areas of critical need, including:

- campus information technology infrastructure and science, technology, engineering, and mathematics (STEM) programs;
- educational and personal support for students from elementary through professional school, including summer sessions for students from elementary school through college;
- junior and senior high school bridge programs;
- higher level degree bridge programs;
- summer school preparation programs;
- ongoing educational and personal support programs for students.

Goals of the program would be to: promote interest, enrichment, and exposure to careers in information technology; bolster participants' math and science abilities and build self-esteem; prepare college students for graduation from information technology degree programs; and significantly expand the American Indian IT workforce.

3. **Remote Technical Support:** Because the tribal colleges are small, underfunded and geographically remote, hiring, training, and retaining qualified information technology support staff is very difficult. We have very good people at our schools, but often, they need a little extra support and guidance. Targeted funding to encourage and sustain remote technical support, training cohort programs, and student-based IT technical support models such as the University of Wisconsin model could be very beneficial to all minority-serving institutions.

4. **Strategic IT Planning:** The need for ongoing strategic planning is paramount to any major initiative or institution. In this area, with technology rapidly evolving and new opportunities becoming available from all sectors, strategic planning for coordination and growth is essential. Specifically, planning needs to be focused on the

unique nature and mission of institutions of higher education. Possible models include the AIHEC/AN–MSI/ITAA partnership currently underway to provide technical assistance to NSF–TCUP grantees. Working closely with experts from the tribal college and MSI communities, AIHEC and AN–MSI are sponsoring teams that will visit colleges to: (1) document, assess, and, if necessary, help improve current networking architecture; (2) increase awareness of technology trends and issues among college leadership and faculty; and (3) begin or expand the process of community-based IT strategic planning. Authorization and funding to expand this effort and ensure strategic IT would be a wise investment.

5. **Opportunity Parity:** An advantage to the breadth of S. 196's language is that tribal colleges and other MSIs can compete for funding regardless of where they are on the "technology spectrum." The language would appear to allow funding, regardless of whether the college is seeking basic connectivity or upgrading an existing system to build an access node. As new federally funded programs are developed, Congress should bear in mind the degree to which institutions vary and strive to make opportunities available to all. An institution should not be penalized because it currently lacks basic connectivity and e-mail service, but neither should an institution be excluded from participation because it made investments early, before dedicated funding existed, and now seeks upgrades or replacement for aging equipment. All programs must address this fundamental issue of "opportunity parity."

At the same time, the program should not be available to institutions that have crossed the "divide" into the mainstream world of Internet 2 connectivity, Research 1 status, comfortable endowments, and adequate public funding. Federal funding should be targeted at institutions that meet the spirit and letter of the law with respect to minority-serving status. Under S. 196's current language, virtually any institution designated as minority serving, without regard to verifiability (except in the case of tribal colleges and universities) are eligible to compete in the program authorized in S. 196.

If the Committee shares Senator Allen's stated desire to "address the technology gap that exists at many Minority Serving Institutions," the legislation should be amended to exclude Research 1 institutions, institutions with significant endowments, institutions that are unable to sufficiently verify defined "minority" status, and institutions with proven track records of successful competition in NSF's more complex programs. For example, language could be added that would bar applications from institutions with endowments over a certain size, institutions with multiple NSF grants, or institutions with NSF grants totaling more than a pre-determined dollar amount.

6. **E-rate Eligibility:** The federally created E-rate program has been tremendously successful in bringing affordable telephone and Internet services to the nation's K–12 schools. Just last month, the Bureau of Indian Affairs successfully completed connecting all of its schools to the Internet, and most, if not all, of these schools receive some level of E-rate funding. Currently, the program is not available to tribal colleges, despite the extensive work we do with our K–12 schools. We respectfully request that the Congress consider expanding the E-rate program to include tribal colleges.

In closing, Mr. Chairman, I will reiterate that the tribal colleges are committed to working with the National Science Foundation and research institutions to move forward into a new age of discovery and knowledge. At the same time, we are committed to working with private industry to bring offshore jobs home to the United States. We are committed to revitalizing our communities and America's economy through entrepreneurship. And we are committed to working with Senator Allen to build a bridge of technological opportunity across our vast nation. Thank you.

Senator ALLEN. Thank you, Dr. Monette, and thank each and every one of you all for your outstanding testimony.

There may be questions that others may want to pose to you later. I am sure you will be willing to entertain those.

Let me ask you a few questions here. Overall questions. You do not need to all answer unless there is—if one of you all answers it well and you all agree, just nod. You do not all have to answer it.

But in the competition for students, a lot of your students listened to the testimony. While you are from diverse backgrounds, diverse states, diverse from inner cities to wide open spaces of the Plains and out West, the competition for students—if you are going

to get good-quality students who want to be in computer sciences and engineering and technology-related research or instruction science, the various sciences, clearly they are going to be going to the schools that have some of that infrastructure there, whether it is the professors who are, in many cases, a great source for grants, private grants. They follow—they are like all-stars that bring whole departments of research with them. And the students are going to go to those who also have the technology.

That is why one change from this, versus the previous year, previous bill that was introduced—there are several changes, but one also was the emphasis on wireless, because that is so much a part of the future. And some of you all, if done right, will maybe actually leapfrog over those that are still using the old wire system. With wireless, obviously we have got to get the right spectrum so you can get broadband without interference.

But in the competition for students, do you find that it very much makes it more difficult for you to get the best students because of the lack of technology infrastructure and capabilities at your institutions?

If somebody had a chance to choose in those fields, and we know there is a tremendous demand, and many minorities, even from their homes—the testimony of Dr. Monette, I think, is borne out, generally agreed by all—if you look at the ownership of computers and Internet access in homes as pretty much a function of income, but it is borne out also by ethnicity or race, as well.

But do you find it hard to compete for the best students if you do not have the infrastructure there at your university? Do any of you all want to comment on that?

Dr. FLAKE. Certainly. I think it even begins before you get to the stage of recruitment. The reality is, if you do not have the capability, you cannot even reach the best students. The best students are bombarded by computer—by Internet long before some of us have an opportunity to be able to access them. They have already acquired information during the junior and senior years of those students, and they have already begun the process of communicating with them, and they do that on a regular basis.

For us, the amount of time that it takes to get up, to get that information to a student is probably—they are probably two-thirds ahead of us already in the game, so you are playing catch-up. So that what you wind up, in many instances—young people who want to be at that institution or young people who come because they have—all the other institutions have made their selections and they were not in that selection process.

Furthermore, you cannot do the kind of outreach that is essential. If you run a continuing education programs like we do to do Internet registrations, to do—a means by which you are able to assure that those persons who work during the day and are able to take continuing education classes, and you do not have the ability for them to transmit the information, their course work and the like, back to the institution in a reasonable amount of time, it works against you.

I think there are just a lot mitigating factors that makes it extremely difficult, starting with the recruiting process, and it goes

on through the process for the years that that student happens to be a part of the population.

Senator ALLEN. You all seem to agree with that. How about in the recruitment of faculty? Does this have an effect on your ability to recruit?

Dr. MCDEMMOND. Absolutely.

Senator ALLEN. Dr. McDemmond?

Dr. MCDEMMOND. We were just fortunate to get someone to head our new masters in computer science program out of the OCR accord who just came from the National Security Agency. He is a Norfolk State graduate, and that is why he came back to us. But to say that we have the facilities that he is even accustomed to at NSA would be an understatement. We have nowhere what he knows that our students need in order to be educated.

And that is where it is critical also. It is a vicious cycle, because in graduate education, and particularly our masters in chemical physics, our masters in optical engineering and electronics engineering, and now computer science, it is going to be critical for us to keep the level of technology we need to make sure we are producing competitively qualified students as they finish these programs.

It is a cycle where we did not have what we were supposed to have. These new programs have been given to us, but now we do not have the wherewithal to provide the kind of infrastructure and the computing and technology systems we need, and that is why this bill would help that.

Senator ALLEN. Dr. Monette?

Dr. MONETTE. Thank you, Senator.

As I stated, most of the tribal colleges are located in very isolated areas. The reason they even came about in the first place is because so many of our Indian people did not have access to higher education opportunity. And in many cases, the tribal college, the tribally-based college, is the only option, with or without technology. That is where our people need to go to access higher education.

Isolation, poverty, rural areas, it is tough to recruit staff people into these schools anyway. And because operational monies are limited, we are unable to pay lucrative salaries that would attract high-quality individuals.

We do have a recommendation for the bill, looking at this problem in the long term and trying to find a solution, and that is to develop a program—we call it Indians Into Technology—similar to a program that exists at the University of North Dakota called Indians Into Medicine, the INMED program. What we would do here is provide comprehensive educational and personnel support for pre-K through college, through graduate school, provide support to those individuals, hoping that by doing so we would not only stimulate interest in technology, but begin to train some of our own people to gain this knowledge and to return to our reservation to help our people.

Senator ALLEN. Yes, Dr. Fernandez?

Dr. FERNANDEZ. Yes, I would like to comment, particularly at the level of graduate education, both in teacher training as well as in health professionals. We have lots of hospitals. In fact, hospitals

are one of the biggest businesses in the borough of the Bronx, and thousands of individuals are employed in hospitals through continuing education, professional development. We are now beginning to offer some of this training onsite in the hospitals via distance education. And if we could do this—we do this now on our normal wire connection over the Internet, but wireless technology capability would significantly expand our ability to do that and provide that without having those individuals having to travel to our campus. If we do it asynchronously, they could also do this on their time at their own leisure, rather than having to be stuck coming at a particular time.

As far as teacher training, that is one of our largest programs at the graduate level. A lot of the teachers are really thirsty for this kind of knowledge, and they would welcome the opportunity to not only see it at the college, but then go back to the school and be able to utilize it and apply it to their own classrooms. And we are looking for funds, and we obtained some funds to do this in a number of classrooms, but I think if we could expand this significantly, it would have, really, an impact on the borough.

Dr. DELAUDER. Yes. Mr. Chairman, I alluded in my remarks to the very issue that you had brought forth. Students begin by looking at your Web page, because by looking at the Web page they learn something about the institution and something about the technological advantages and capabilities of the institution. We are not at state-of-the-art in Delaware State, but we do provide reasonable access to students, in terms of use of technology, and so that does give us somewhat of a competitive edge. We would like to be even better than we are. But it does help, in terms of recruiting students.

And when they visit your campus, they ask very focused questions, and technology is one of the areas where they will ask questions, so that if you are lacking in the capability, it does make you less competitive in attracting the best and the brightest students and attracting the best and brightest faculty.

Senator ALLEN. Thank you all.

The point of all this is that to have good professors who actually know that you are going to need to the infrastructure, they are going to need the training. Not every student's going to get into every university or college they want to. But if they have that capability and they have the desire, they need those tools to compete.

You have in here, Congressman Flake, words which are really—they are almost paraphrasing de Tocqueville, where you are talking about Taylor only limited by his ability to imagine and realize his own potential. De Tocqueville said something to the effect that the only things that have not been done in America are those things that we have not tried to do. That needs to continue to be the spirit of this country, is that we are only limited by our imagination and our own diligence, our hard work and ingenuity.

And so every student who is going on to college to learn, it is—education is so important, obviously, to them leading a fulfilling life and providing for themselves and their families and being responsible citizens. And of course, it helps our entire civilization. So all of this is, I think, so important to our country.

Now, one other issue that was brought up in your support for making sure that the waiver on matching grants was not there. I do not suspect any of you all have an endowment or a foundation of over $50 million. I do not know if you want to—some of you all are—well, two of you all are public, so everything generally is revealed there. Would you all mind sharing with us—Dr. DeLauder, of course, represents Delaware State and others. If you would feel comfortable, could you share with me—obviously, this is the public—how much of an endowment or foundation you all have at Delaware State? And Dr. DeLauder, if you could say the average for all of the colleges you represent in your association.

Dr. DELAUDER. I am not sure that I can give you an average number, and it obviously will vary between the privates and the publics, but at Delaware State, our endowment is about 12 million.

Senator ALLEN. 12 million?

Dr. DELAUDER. With a better market, it would be a little better than that, but you understand.

Senator ALLEN. Thank you.

Dr. Fernandez, at Lehman College, do you have any private endowment there or——

Dr. FERNANDEZ. Yes, we do. We——

Senator ALLEN.—are you part of——

Dr. FERNANDEZ.—we have a foundation, a college-related foundation. And the last time I looked, a couple of days ago, it was about a little over $6 million. It was as high as about nine, but with the market, that has changed significantly.

Senator ALLEN. So you are in favor of ending double taxation of dividends?

[Laughter.]

Senator ALLEN. I am joking. You do not need to answer.

[Laughter.]

Senator ALLEN. Congressman Flake, at Wilberforce?

Dr. FLAKE. Yeah, we were up to about——

Senator ALLEN. You are a unique one in that I think, Wilberforce is, clearly, the oldest—is not the oldest——

Dr. FLAKE. The oldest and seemingly the poorest at the table here.

[Laughter.]

Senator ALLEN. Oh, alright. Okay.

Dr. FLAKE. Our endowment is—with the market hit, it is about 2.3 mil.

Senator ALLEN. Believe it or—Dr. McDemmond, of course, yours if a newer—as you mentioned, but I would—what was your figure?

Dr. MCDEMMOND. Seven million, and we have a foundation where that money resides.

Senator ALLEN. Yours, Dr. Monette, would be a variety of them, but do you have a range?

Dr. MONETTE. Excuse me, Senator. What is an endowment, please?

[Laughter.]

Senator ALLEN Oh, it is what you might have in the cookie jar.

[Laughter.]

Senator ALLEN. Rainy-day fund, whatever.

Dr. MONETTE. I do not know the situation at each of the tribal colleges, but I know collectively we are very poor, and I would guess no endowments.

Senator ALLEN. All right.

As best I understood, just for your information in research this, this matching opportunity, only—Hampton University and Howard University would be the only two of which I am aware where this might could be——

Dr. FLAKE. And Spelman.

Senator ALLEN. Excuse me?

Dr. MCDEMMOND. And Spelman.

Dr. FLAKE. Spelman.

Senator ALLEN. And Spelman, all right. There. Good. Thank you. And Spelman. So there are three. It could be waived, as well.

And I do take your point, and it is very—when we crafted this legislation with the National Science Foundation, please understand that we want you all—and your peer review is going to be very important, and in the event that any of you all or other Hispanic Serving Institutions or Historically Black Colleges and universities or tribal colleges or institutions are involved, it is very important that you provide strict scrutiny to make sure that any of these grants are going to be used for appropriate purposes. Integrity is important, and I know that you all take that very seriously. You are caring leaders, you are knowledgeable leaders, but you need to be involved, because some people may not understand what you understand about the needs.

Let me finish off with this question, which is a broader question. It came up somewhat last year. I was just asked about it on the way to the hearing today. And while in this situation here that we have been talking about, you are all—your institutions, your colleges and universities are serving predominantly African-Americans or Hispanics, Latinos, or American Indian tribes, this also applies to Alaskans and Hawaiian facilities. The primary factor, it seems in your challenge is here. While in the past it may have been race and racial discrimination, the present situation is based primarily on income.

You are talking about where many of your students have come from. Again, Dr. Monette gave the statistics across the board. Would you say that a key determining factor of this digital divide on your campuses is one of income, as opposed to race?

Granted, it plays out in your institutions on a cultural or ethnic or racial pattern, but would you say a key determining factor is income?

Dr. MCDEMMOND. I would definitely say so. We see the students at even other of the HBCUs that really have a higher profile, socioeconomic profile, and the disparity in the digital divide is not as great. They come with laptops to some of our richer HBCUs. But when you have a profile like we have at Norfolk State, with income under $25,000, median family income, and most of them are working, and our average age is 27, that we really see this disparity more than at some of the wealthier HBCUs.

Senator ALLEN. That is sort of the one thing—throughout, you are talking about how many students are in student aid, the inability of students to have their own laptop, and then on top of it all,

the university or college does not have as much of the capabilities, whether it is WiFi or the wiring for the distance learning and so forth.

Dr. DeLauder, did you——

Dr. DELAUDER. Yeah, I would agree with that as it relates to students. But I think in terms of our institutions, even though one may argue that we are being more fairly funded now, we have had decades and decades of under-funding. And so when you are confronted with trying to set budget priorities in terms of resources that you are getting, let us say, from the state, you have to take care of some fundamental things that we are not taking care of, and, therefore, you cannot just allocate the kind of resources to technology that you would like to.

So I think the issue of past discrimination, if that is what you want to call it, de facto or otherwise, is an element, because that is really why we are where we are now despite the fact that things have changed. But we have not made up for the past disparities.

Senator ALLEN. Right. Agreed, thank you.

Yes, Dr. Fernandez?

Dr. FERNANDEZ. Yes. At the University, for the first time last year, a fee earmarked for technology was reluctantly adopted by the trustees of $75 a semester, so $150 a year. Those funds have to be identified and can only be spent for that. Now, this has allowed us to provide students with a lot more computers, replacing equipment on a regular basis. Some of these machines are on 18 hours a day, and they do not last more than two or three years. So they—we did not have any money in our budget to do that. But to do this on the backs of students, most of whom require financial aid, and when those funds are being cut, and now the university is considering a major tuition increase that has been proposed by the governor—it is up for debate—but it is going to create a very difficult situation for our students. So all the more, the need is there.

Senator ALLEN. Thank you, Dr. Fernandez.

At a prior meeting, Dr. McDemmond and other college presidents were talking about the need for financial aid, where if you are at a certain universities—University of Virginia, University of Georgia, North Carolina, Syracuse, University of Delaware—the student fee increases. No one enjoys them, but folks can afford them, various student activities fees. And what you have is a continuation of the prior discrimination, racial discrimination, in this country. It was separate and not equal. And therefore, as it is perpetuated, it is not surprising that basic infrastructure and students—most people—and we brought this up earlier, some were involved—if you all were involved in it—but if students are graduating and getting good jobs, they are going to be very grateful and appreciative of their alma mater, and they are going to be giving money back and helping them out and so forth. And to the extent that that has gone on for generations, there is not de jure discrimination now, but nevertheless that is how endowments are built up.

Some of you—Wilberforce is older, but, nevertheless, if the schools are being underfunded, the students are not doing as well, and, again, the chasm or the canyon, the digital divide canyon amongst institutions that—of course, it is not the institutions we

care about; it is the students who are not getting that education that they could be getting.

And again, with technology being so key to the future, that means their job opportunities in the future will be limited. And again, to the extent that you do care back about the institutions, you want your graduates doing well and then, of course, helping whichever—however they want to be generous back to you.

So I thought it was important, in looking at this digital divide, that it a lot of times is called that, but it is an economic digital divide. It is played out in a ricocheting way in your institutions that this measure tries to address and tries to help, because we need everyone rowing on this boat we call America. All people. Everyone needs that oar, that ability to row that oar, whether you are in the high plains or whether you are in the inner cities or in any region of this country.

And I thank each and every one of you all for your great leadership at your institutions and, in some cases, in a larger area of associations. And we will need your help as we go forward here. Your testimony is very helpful. I think we are on a good start. We have much more support, at least on my side of the aisle, this year than we did last year. I think I was about the sole member on it. But we are going to move forward with this. We will get a vote as soon as possible, when Senator McCain holds a vote, a business meeting of this Committee. I hope to get it on the floor. I would love to see unanimous consent and then get it passed on the House side. There are two members, a bipartisan duo—I do not want to announce their names here—but bipartisan groups. Some of you know who they are. Hopefully they will be introducing companion legislation on the House side on it, as well.

So if any of you have anything else to comment—if not, thank you again. Thank everyone for participating and your interest.

Meeting adjourned.

[Whereupon, at 4:00 p.m., the hearing was adjourned.]

A P P E N D I X

PREPARED STATEMENT OF HON. ERNEST F. HOLLINGS,
U.S. SENATOR FROM SOUTH CAROLINA

Mr. Chairman, thank you for holding this important hearing today on the technology needs of minority-serving institutions.

As we all know, access to the Internet is no longer a luxury, but a necessity. Due to the rapid advancement and growing dependence on technology, being digitally connected is becoming ever more critical to economic and educational advancement. Now that a multitude of Americans regularly use the Internet to conduct daily activities, people who lack access to these tools are at an increasing disadvantage. Consequently, it is crucial that all institutions of higher education provide their students with access to the most current information technology.

Unfortunately, however, due to economic constraints, many minority-serving institutions are unable to provide adequate access to the Internet and other information technology tools and applications. This lack of access creates a split between technology "haves" and "have nots" known as the "digital divide." S. 196, the Digital and Wireless Technology Program Act of 2003 seeks to bridge this divide by creating a grant program that will provide minority-serving institutions with funds to be used for such activities as campus wiring, equipment upgrades, and technology training.

Last Congress, similar legislation reported by this Committee was denied a vote in the full Senate. This Congress, I hope that Senators Allen, McCain, myself, and others can work together to get this legislation enacted into law in order to make this program a success.

PREPARED STATEMENT OF HON. FRANK LAUTENBERG,
U.S. SENATOR FROM NEW JERSEY

Mr. Chairman, I commend you for holding this hearing today.

The "Digital Divide" is real, and it's growing. A disproportionate number of African-Americans, Hispanics, and Native Americans are on the wrong side of the Divide and that threatens their ability to get the training and get the jobs that will help them close the "Economic Divide."

Mr. Chairman, I'm going to take a close look at your bill, the Digital and Wireless Network Technology Program Act (S. 196). As I understand the bill, it authorizes the National Science Foundation (NSF) to pay out a total of $1.250 billion in grants over the next five fiscal years to Minority-Serving Institutions (MSIs), who could use the money to wire their campuses, upgrade network infrastructure to improve connectivity, provide technology training, and purchase hardware and software.

The bill certainly has merit because it meets a demonstrated need.

But in all candor, I wonder how we're going to pay for it.

The Administration just submitted a budget request that projects a budget deficit of $307 billion in Fiscal Year (FY) 2004, $208 billion in FY 2005, $201 billion in FY 2006, $178 billion in FY 2007, and $190 billion in FY 2008.

In other words, the Administration is projecting a cumulative budget *deficit* of nearly $1.1 *trillion* at the same time this bill is authorizing $1.250 billion in *new* expenditures.

Don't get me wrong—I would be in favor of such expenditures. But I think the Chairman's bill highlights the basic problem of a budget proposal that would cut the government's revenues even more than they were reduced in 2001.

If S. 196 were to become law, I wonder if it would suffer the same fate as these programs: Education Technology State Grants—frozen at FY 2002 levels (which means the program is cut in real terms); Indian Education Grants to Local Education Agencies (LEAs)—frozen at FY 2002 levels; Indian Education Special Programs—frozen at FY 2002 levels;

Minority Science and Engineering Improvement—frozen at FY 2002 levels; Tribally Controlled Postsecondary Vocational and Technical Institutions—frozen at FY 2002 levels; Pell Grant maximum awards—frozen at the FY 2002 level.

And then there's 21st Century Community Learning Centers—cut 40 percent below FY 2002 levels; Education for Native Hawaiians—cut 40 percent below FY 2002 levels; and Strengthening Alaska Native and Native Hawaiian-serving Institutions—cut 38 percent below FY 2002 levels.

And, finally, there's Community Technology Centers—eliminated altogether; Migrant and Seasonal Farmworkers Vocational Education—eliminated altogether; Tech-Prep Education State Grants—eliminated altogether; Thurgood Marshall Legal Education Opportunity Program—eliminated altogether.

In fairness, there are some small increases in the President's budget request for Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribally-Controlled Institutions (TCIs).

But the overall Fiscal Year 2004 budget request for education—after paying down the prior year Pell Grant shortfall—is just a 1.9 percent increase over the President's Fiscal Year 2003 request. That doesn't cover inflation.

I just don't know how we can fund a *new* program, continue funding worthwhile *existing* programs, *and* propose bigger and bigger cuts in the government's revenues. I think any reasonably good math student would tell us that the numbers just don't add up.

Thank you, Mr. Chairman.

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