



ARIZONA STATE
UNIVERSITY

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UNIVERSITY
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PRESIDENT

STU HADLEY,
EXECUTIVE DIRECTOR
OF FEDERAL RELATIONS

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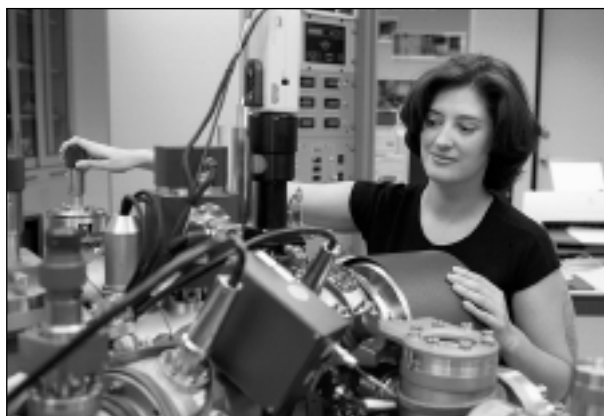
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MICHAEL M. CROW PRESIDENT, ARIZONA STATE UNIVERSITY

Michael M. Crow became the 16th president of Arizona State University on July 1, 2002. He is guiding the transformation of ASU into one of the nation's leading public metropolitan research universities, one that is directly engaged in the economic, social, and cultural vitality of its region. Under his direction the university pursues teaching, research, and creative excellence focused on the major challenges and questions of our time, as well as those central to the building of a sustainable environment and economy for Arizona. He has committed the university to global engagement, and to setting a new standard for public service.

Since he took office, ASU has marked a number of important milestones, including the establishment of major interdisciplinary research initiatives such as the Biodesign Institute; the International Institute for Sustainability; and MacroTechnology Works, a program integrating science and technology for large-scale applications, including the Flexible Display Center, a cooperative agreement with the U.S. Army. Under his direction ASU has initiated a dramatic research infrastructure expansion to create more than one million square feet of new research space, and has announced naming gifts endowing the W. P. Carey School of Business, the Ira A. Fulton School of Engineering, and the Virginia G. Piper Center for Creative Writing.

Prior to joining ASU, he was executive vice provost of Columbia University, where he also was professor of science and technology policy in the School of International and Public Affairs. Dr. Crow oversaw Columbia's research enterprise, technology and innovation transfer operations, strategic initiative program, and interdisciplinary program development.

He played the lead role in the creation of the Columbia Earth Institute (CEI), and helped found the Center for Science, Policy, and Outcomes (CSPO) in Washington, D.C., a think tank dedicated to linking science and technology to desired social, economic, and environmental outcomes. In 2003 CSPO was reestablished at ASU as the Consortium for Science, Policy, and Outcomes.

He is the author of books and articles relating to the analysis of research organizations, technology transfer, science and technology policy, and the practice and theory of public policy.

www.asu.edu/president/



Arizona State University is one of the premier metropolitan public research universities in the nation. Enrolling more than 58,000 undergraduate, graduate, and professional students on three campuses in metropolitan Phoenix, ASU maintains a tradition of academic excellence in core disciplines, and has become an important global center for innovative interdisciplinary teaching and research. ASU offers outstanding resources for study and research, including libraries and museums with important collections, studios and performing arts spaces for creative endeavor, and unsurpassed state-of-the-art scientific and technological laboratories and research facilities.

In addition to the historic campus in Tempe, a college town in the midst of a dynamic metropolitan region, the university comprises two newer campuses with more specialized missions: ASU's West campus and ASU's East campus in Mesa, which is transitioning to become a Polytechnic campus. The conceptualization and design of the Downtown Phoenix campus is presently underway, with plans for a vibrant cultural, creative and education center. The vision for an expanded ASU presence in Downtown Phoenix is part of an ongoing comprehensive development planning process that will involve detailed analysis of all of ASU's campus sites, focusing on issues related to transportation, university access, blending university learning facilities with non-university facilities, and blending the university into its surrounding towns and cities. Currently in downtown Phoenix, ASU's Extended Campus offers academic programs and professional certificate programs.

ASU's Tempe campus: ASU's Tempe campus is located in the heart of Tempe where about 49,000 students are enrolled in daytime and evening classes. The university is recognized nationally as a foremost research institution offering excellent undergraduate and graduate education and nationally ranked athletic programs as well as a full array of cultural activities. The main campus offers 87 bachelor's, 95 master's, 48 doctoral or terminal degree programs, and one law degree program.

ASU's West campus: ASU's West campus serves more than 7,000 undergraduate and graduate students at its modern, growing campus in north-west Phoenix. The West campus offers bachelor's and master's degree programs in the Colleges of Arts & Sciences, Education, Human Services, School of the Management and the Division of Collaborative Programs. Facilities include a full-service library, computer linked classrooms, and a complete array of student services including bookstore, fitness center, cafeteria, and child care center.

ASU's East campus: ASU's East campus has a polytechnic focus, and is the home campus for the College of Technology and Applied Sciences, the Morrison School of Agribusiness and Resource Management, and East College. The campus, located in southeast Mesa, offers a small residential college environment for its more than 3,500 students. Sixteen baccalaureate programs and five master's degree programs are available at



ASU accepts the responsibility of offering all the benefits that a diverse, rapidly growing population center expects from higher education:

- *the highest quality teaching and research;*
- *readily accessible education; and*
- *community, neighborhood, and industry partnerships*





ASU's East campus. ASU's East campus and West campus both offer a Bachelor of Applied Science (BAS) degree.

The Extended Campus: represents collaborations of ASU colleges and campuses to deliver quality education worldwide through the College of Extended Education. The ASU Extended Campus goes beyond the boundaries of the university's three physical campuses to provide access to quality education for working adults through flexible schedules, a vast network of off-campus sites, classes scheduled evenings and weekends, and innovative technologies including the internet and television.

ASU is research-driven but focused on learning—teaching is carried out in a context that encourages the creation of new knowledge. The faculty includes recipients of prestigious academic and professional awards, including membership in the national academies. ASU currently ranks third among public universities in its enrollment of freshmen National Merit Scholars. The university champions diversity, and is international in scope, welcoming students from all 50 states and over 150 nations across the globe. ASU is an active partner with the private sector in initiatives to enhance the social well-being, economic competitiveness, cultural depth, and quality of life of metropolitan Phoenix and the state.

On February 26, 1885, House Bill 164, “An Act to Establish a Normal School in the Territory of Arizona,” was introduced in the 13th Legislative Assembly of Arizona Territory by John Samuel Armstrong. The bill, strongly supported by Charles Trumbull Hayden of Tempe, passed the House on March 6 and the Council on March 11 and was signed by Governor F.A. Tittle on March 12, 1885, thereby founding the institution known today as Arizona State University. Under the supervision of Principal Hiram Bradford Farmer, instruction was instituted on February 8, 1886, when 33 students met in a single room on land donated by George and Martha Wilson of Tempe.

The institution began with the broad obligation to provide “instruction of persons...in the art of teaching and in all the various branches that pertain to good common school education; also, to give instruction in the mechanical arts and in husbandry and agricultural chemistry, the fundamental law of the United States, and in what regards the rights and duties of citizens.”

With the growth of the state, especially the surrounding Phoenix metropolitan area, the school has carried forward this charter, accompanied by successive changes in scope, name, and governance.

The Early Years. For the first 14 years, the school was governed by six principals. At the turn of the century and with another new name, Normal School of Arizona, President Arthur John Matthews brought a 30-year tenure of progress to the school.

He assisted in changing the school to an all-college student status; the Normal School had enlisted high school students who had no other secondary educational facilities in Arizona. He embarked on a building schedule that included the state’s first dormitories. Of the 18 buildings constructed while Matthews was president, six are still in use. His legacy of an “evergreen campus,” with the import of many shrubs and trees and the planting of Palm Walk, continues to this day: the main campus is a nationally recognized arboretum.

Matthews also saw to it that the Normal School was accredited outside the state. His service on national education organization boards was conducive to this recognition. The school remained a teacher’s college in fact and theory during Matthews’ tenure, although the struggle to attain status as a university was ongoing.

An extraordinary event occurred March 20, 1911, when former President Theodore Roosevelt visited the Tempe school and spoke from the steps of Old Main. He had dedicated the Roosevelt Dam the day before and was impressed with Arizona. He noted that construction of the dam would benefit central Arizona’s growth and that of the Normal School. It would be another year before the territory became a state.

During the Great Depression, Ralph W. Swetman was hired as president for a three-year term. This was a time of uncertainty for educational institutions. Although enrollment increased due to the depression, many faculty were terminated and faculty salaries were cut. The North Central Association became the accrediting agency for Arizona State Teachers College.

The Gammage Years. In 1933, Grady Gammage, then president of Arizona State Teachers College at Flagstaff, became president of Arizona State Teachers College at Tempe, a tenure that would last for nearly 28 years.

The Graduate Division was created in 1937, and the first master’s program was established the same year.

On March 8, 1945, the three state institutions of higher learning came under the authority of one Arizona Board of Regents, which oversees ASU today.

The phenomenal growth of the college began after the end of World War II. Dr. Gammage had foreseen that the G.I. Bill of Rights would flood campuses everywhere with returning veterans. Many of the veterans who had received military training in Arizona had fallen in love with the state and vowed to return after the war. The numbers within one year were staggering: in the fall semester of 1945, 553 students were enrolled; over the weekend semester break in January 1946, enrollment increased 110 percent to 1,163 students. Successive semesters saw continuing increased enrollment.

Like his predecessor, Dr. Gammage oversaw the construction of a number of buildings. His greatest dream, that of a great auditorium, came to fruition after his death. He laid the groundwork for it with Frank Lloyd Wright, who designed what is now the university’s hallmark building, Grady Gammage Memorial Auditorium, built in 1964.



Years of Growth and Stature. During the 1960s, with the presidency of Dr. G. Homer Durham, Arizona State University began its academic rise with the establishment of several new colleges (the College of Fine Arts, the College of Law, the College of Nursing, and the School of Social Work) and the reorganization of what became the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences. Perhaps most important, the university gained the authority to award the Doctor of Philosophy and other doctoral degrees.

The next three presidents — Harry K. Newburn, 1969–1971, John W. Schwada, 1971–1981, and J. Russell Nelson, 1981–1989 — and Interim President Richard Peck, 1989, led the university to increased academic stature, expansion of the campuses, and rising enrollment.

A transformation of ASU has taken place under the leadership of Dr. Lattie F. Coor, who became the university's 15th president on January 1, 1990. Coor retired from the presidency on June 30, 2002. The university has grown to serve the Valley of the Sun through multiple campuses and the College of Extended Education, an architecture that positions ASU to meet future enrollment growth.

The quality of undergraduate students and programs has improved substantially during the past decade. In 2001, ASU had its best year in history in prestigious national scholarship competitions. Students brought home the Rhodes, Truman, Marshall, Goldwater, and Udall awards, making ASU

one of only two public universities in the nation to be represented in all five top scholarship awards. Enrollment in the Barrett Honors College has more than tripled since 1988, from 800 to more than 2,600 students majoring in all disciplines throughout ASU. During the last decade, the university's minority enrollment has more than doubled. This fall, minorities represent 30 percent of the university's freshman class and nearly 20 percent of the entire enrollment.

With regard to ASU faculty, the percentage of minorities has increased to 15.3 percent — up from 10.3 percent five years ago. ASU has the highest numbers and highest proportion of Hispanic faculty of any major U.S. research university.

ASU has become one of the leading research universities in America, developing nationally recognized programs in a number of fields, including accounting; astrobiology; design science; ecology and evolutionary biology; electron microscopy; engineering; exercise science; music; nanotechnology; psychology; and solid-state science.

ASU is committing to a strategic focus on four critical research areas that are essential in the New Economy: materials; biomedicine and biotechnology; information science and technology; and manufacturing. These initiatives already have a significant impact on the Arizona economy, representing more than 207,000 jobs, 2,000 businesses, and \$1.5 billion in exports in the first quarter of 2000.

Part of Coor's legacy to the university — before retiring at the end of the 2002 academic year

— is a successful fund raising campaign. Through private donations, primarily from the local community, \$500 million is being invested in targeted areas that most significantly impact the future of ASU. Among the campaign's achievements are the naming and endowing of the Barrett Honors College, the Katherine K. Herberger College of Fine Arts, and the Morrison School of Agribusiness and Resource Management at ASU East; the creation of many new endowed faculty positions, and hundreds of new scholarships and fellowships.

Research Extensive Status. ASU was granted Research I status (now called Research Extensive) by the Carnegie Foundation for the Advancement of Teaching in early 1994. Nationally, 88 universities have been granted this status, indicating successful garnering of support for research projects and educating future scientists.

A new era for the university began on July 1, 2002, when Michael Crow became president of ASU.

UNIVERSITY NAME TIMELINE

Territorial Normal School, March 12, 1885
Arizona Normal School, 1896
Normal School of Arizona, March 11, 1899
Tempe Normal School, March 2, 1901
Tempe State Teachers College, March 7, 1925
Arizona State Teachers College at Tempe, 1928
Arizona State College at Tempe, March 13, 1945
Arizona State University, December 5, 1958

FIGHT SONG

Fight, Devils down the field.
Fight with your might and don't ever yield.
Long may our colors outshine all others.
Echo from the buttes, Give 'Em Hell Devils!
Cheer, cheer for A-S-U.
Fight for the Old Maroon.
For it's Hail! Hail! The gang's all here
And it's onward to victory!

ALMA MATER

Where the bold saguaros
Raise their arms on high.
Praying strength for brave tomorrows
From the western sky.
Where eternal mountains
Kneel at sunset's gate.
Here we hail thee, Alma Mater
Arizona State.

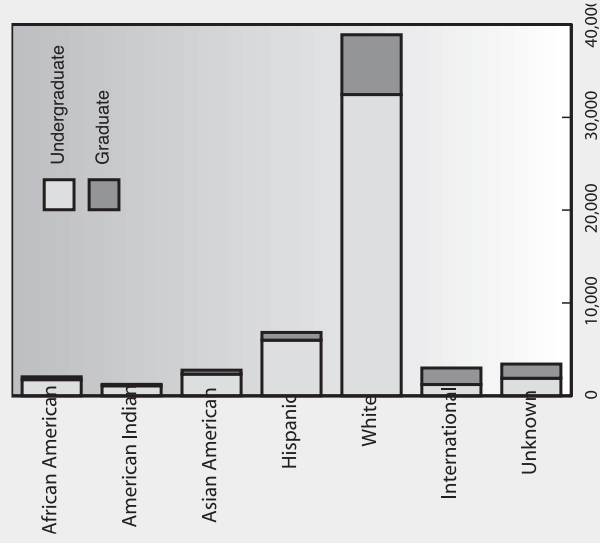
ASU Enrollment

Enrollment by Race / Ethnicity

Enrollment by Level

	Fall 1994		Fall 1999		Fall 2004	
	Undergrad	Grad	Undergrad	Grad	Undergrad	Grad
African Am	931	233	1,188	257	1,735	310
Am Indian	634	127	818	159	1,071	166
Asian Am	1,304	426	1,757	407	2,330	426
Hispanic	3,144	754	4,172	836	5,991	825
White	25,660	8,670	27,270	7,933	32,456	6,448
International	1,132	1,359	1,291	1,668	1,203	1,788
Unknown	1,001	391	1,492	452	1,884	1,523
Total	33,806	11,960	37,988	11,712	46,670	11,486

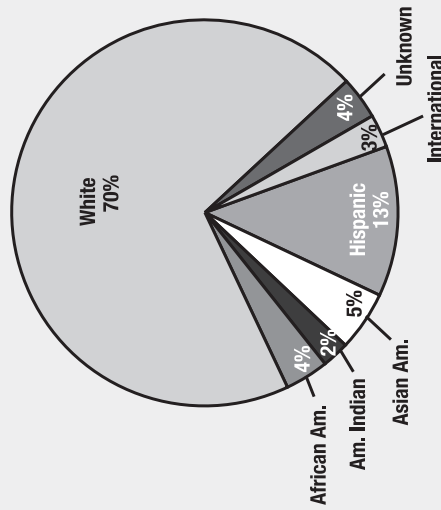
Fall 2004 Enrollment



ASU Enrollment

Enrollment by Race / Ethnicity

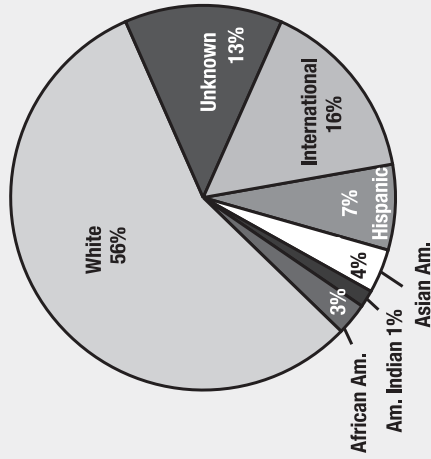
Fall 2004 Undergraduate Distribution



Total Enrollment

	Fall 1994	Fall 1999	Fall 2004
African Am	1,164	1,445	2,045
Am Indian	761	977	1,237
Asian Am	1,730	2,164	2,756
Hispanic	3,898	5,008	6,816
White	34,330	35,203	38,904
International	2,491	2,959	2,991
Unknown	1,392	1,944	3,407
Total	45,766	49,700	58,156

Fall 2004 Graduate Student Distribution



A NEW AMERICAN UNIVERSITY: THE NEW GOLD STANDARD

Excerpts from a white paper to guide the reinvention of the American research university From the Office of the President, Arizona State University

At ASU we are developing a new model for the American research university, creating an institution that measures its academic quality by the education that its graduates have received rather than the academic credentials of its incoming freshman class; one at which researchers, while pursuing their scholarly interests, also consider the public good; one that does not just engage in community service, but rather takes on major responsibility for the economic, social, and cultural vitality of its community. Such an institution provides the best possible education to the broadest possible spectrum of society, embracing the educational needs of the entire population—not only a select group, and not only the verbally or mathematically gifted. Its success will be measured not by who the university excludes, but rather by who the university includes, and from this inclusion will come the diversity necessary for the advancement of society.

These tenets, first proposed by ASU president Michael M. Crow in his inaugural policy paper, “A New American University: The New Gold Standard” (November 2002), represent a new way of thinking about the fundamental objectives of a university—teaching, research, and public service. As it evolves during a ten-year institutional transformation process, ASU will serve as the prototype for a New American University, redefining the existing conception of the American research university, and spurring the evolution of an institutional form rooted in the past.

The vision of a New American University is guided by eight “design imperatives,” proposed by President Crow, that represent new standards for teaching, research, and public service. The design imperatives are guiding principles and were never intended to represent hard-and-fast categories—most of the aspirations and accomplishments of an academic institution do not correspond neatly to a single design imperative, but rather embrace many. And not all design imperatives could possibly be relevant to any given scholar or student or team of researchers. Their objective is to spur new thinking, suggest new possibilities, and unleash the creative potential of academic communities.

The tactical implementation of the vision is being accomplished through a comprehensive reconceptualization (“design process”) of the university, initiated by President Crow in response to a new era marked by unprecedented demographic change in Arizona, and quantum leaps in scientific discovery and technological innovation. As set forth in the April 2004



“Most institutions judge their academic quality by who they exclude; we will be judged by who we include.”

– Michael M. Crow
President, Arizona State University



white paper “One University in Many Places: Transitional Design to Twenty-First Century Excellence,” the objective of the process is to build a comprehensive metropolitan research university that is an unparalleled combination of academic excellence and commitment to its social, economic, cultural, and environmental setting.

The principal mechanism of the design process is the empowerment of colleges and schools, a model termed “school-centrism.” The school-centric model will produce a federation of unique colleges, schools, academic departments, and interdisciplinary institutes and centers (“schools”), and a deliberate and planned clustering of programs on each campus around a related theme and mission. Predicated on devolving intellectual and entrepreneurial responsibility to the level of the college or school, the school-centric model calls for each school to compete for status, not with other schools within the university, but with schools around the country and around the world. Schools are encouraged to grow and prosper to the extent of their individual intellectual and market limits.

ASU has been moving at an accelerated pace to establish itself as one of the leading centers for cutting-edge interdisciplinary research in selected areas, both fundamental and applied. Consistent with the vision of the research university as a catalyst for societal change, ASU favors a research enterprise dedicated to societal relevance and socially optimal outcomes of research. ASU has embarked on a dramatic research infrastructure expansion to create more than one million square feet of new research space, moving the university closer to its goal of tripling research capacity during the next five years. As a consequence of investment in research infrastructure, an unprecedented acceleration of the research enterprise, and the aggressive recruitment of prominent faculty, the university is projecting a significant increase in both federal funding and private investment, and is exploring possibilities for collaboration with top tier institutional partners.

To a degree rarely appreciated, major research universities, whether public or private, function in a fiercely competitive environment, and in such a context, must operate with “real-world” entrepreneurial speed

and ingenuity. Because ASU does not yet have the endowment resources of a more established university, and, as a public institution, has relied heavily on its annual state appropriation, President Crow has implemented what he terms a “culture of academic enterprise,” casting the university as an enterprise responsible for its own fate, while acknowledging that it is an enterprise that the state government charters and empowers, and in which it invests.

Research universities are concerned with a certain academic profile in their student body, and have defined their excellence by the academic qualifications of their incoming students—an input-driven model. ASU focuses instead on outcome-determined excellence—that is, ASU will admit students with differing interests and indicators of intelligence and creativity, even different levels of high school preparation. It may seem counterintuitive to imagine that one of the nation’s largest universities could effectively focus on the individual student, but ASU seeks to prove that burgeoning enrollment and the quality of the academic experience are not mutually exclusive. Implicit in ASU’s focus on the individual is an explicit commitment to diversity.

ASU currently enrolls almost 60,000 students on four differentiated campuses of equally high aspiration, and because of both demographic trends and the growing reputation for excellence of its undergraduate, graduate, and professional programs, the institution is growing larger. Complementing the overall reconceptualization of the institution, a comprehensive development plan is in place to guide the transformation of the campuses to create a great research university whose buildings and grounds reflect the scope and stature of a world-class institution, providing for its students a vibrant living/learning environment, and fostering an institutional culture consistent with the spirit and climate of the region, as well as its objectives for a sustainable future.

As a public metropolitan research university, the profile of the student body, the character of the research enterprise, and the scope of community engagement differ from that of other institutions. As the only major university in the heart of one of the most rapidly urbanizing metropolitan areas in the nation, a

region marked by explosive population growth, demographic change, rapid development, and environmental trends that threaten its sustainability, ASU bears the additional responsibility of providing leadership for a region that lags behind comparable metropolitan areas in a number of educational, economic, and environmental indicators. And although remaining explicitly focused on its region, ASU is moving aggressively to establish a global presence. Because global engagement is critical to the advancement of a major research institution, ASU is building academic and professional collaborations beyond our national borders, focusing initially on Latin America and China.

THE GOLD STANDARD OF THE PAST

Research universities are the preeminent catalysts for societal change—no institution possesses more potential to transform society: improving the human condition, fostering sustained social advancement and economic growth, and providing us with the tools we need for better planetary stewardship. No corporation, no industry, no government agency can rival their scope and impact, because universities alone exist solely to produce and disseminate knowledge. Never before has the impact of knowledge been greater, and no institution, academic or other, has had, or continues to have, more influence than the research university. ASU is one of only 300 major research institutions in the world, and, as such, has the potential to generate new knowledge that is certain to influence almost every aspect of our future.

The American research university has contributed to the wealth and productivity of the nation, and to an astonishing degree, to advancing the health and happiness of humankind. Our cultural landscape has been defined by the creativity and scholarship that takes place in our research universities. Through their undergraduate, graduate, and professional programs our research universities have been largely responsible for educating successive generations of our nation's leaders in government, business, and industry, our educators, scientists, engineers, artists, and healthcare professionals.

The distinctively American model of the research university came into being in the nineteenth century when the German model of the elite scientific research institute, offering specialized graduate training, was “grafted” onto the traditional American undergraduate liberal arts college. Following the lead of Johns Hopkins University in Baltimore, fifteen institutions came to define the American research university: some of them private, such as Harvard, Columbia, Cornell, Princeton, and Yale; others, state and land grant universities, such as the University of Michigan, the University of Wisconsin, the University of Illinois, and the University of California; still others, new universities established through private bequests, such as Stanford, Caltech, MIT, and the University of Chicago. For the past one hundred years, these institutions have produced the vast majority of Ph.D.'s in the nation, and very nearly everyone who attends an American college or university has been taught by their graduates.

Such has been the influence of these institutions that, to this day, every university in the nation measures itself according to their standards. These universities are considered definitive prototypes, and their disciplinary departments are the departments by which all others are implicitly judged. And because academic departments tend to structure themselves to resemble those most highly ranked in their respective disciplines, academic departments tend to resemble one another across the nation, each more or less a pale reflection of some distant ideal: physics at Caltech and MIT, for example, economics at the University of Chicago, and theater at Yale. Although these institutions represent the gold standard, it is the gold standard of the past. The model for the New American University proposes a rethinking of the static organizational paradigms of American research universities.

THE NEW GOLD STANDARD: DESIGN IMPERATIVES FOR THE NEW AMERICAN UNIVERSITY

The design imperatives of the New American University represent a rethinking of the organizational principles on which universities have historically

been based. The new imperatives reflect the needs of a world that in many ways has changed beyond recognition since the rise of the medieval universities nearly a millennium ago, and even the development of land grant universities 150 years ago. These design aspirations correspond to the explosion in knowledge production, increased specialization in academic disciplines, the rise of new disciplines, and the collapse of disciplinary boundaries that marks the past half-century.

ASU is young and dynamic—great institutions mature over the course of centuries, and although ASU traces its origins to the nineteenth century, its trajectory as a comprehensive research university does not begin until 1958. As such, ASU is one of our nation’s youngest major research institutions, yet this may turn out to be an asset. ASU has been formed—but is not bound—by the organizational principles and practices of existing research universities, and, according to the model proposed, will evolve in response to a new era marked by unprecedented demographic change, and the groundswell in scientific discovery and technological innovation.

The new design imperatives will foster a different kind of university, one that is linked to its setting and the needs of our day, one that does not measure its success on the basis of an historic and in many ways antiquated set of organizational principles. The model proposes taking the best from the existing model, because American research universities are without question the finest in the world. But the New American University is a function of its contemporary environment, rather than the replication of an organization derived in another setting and in another time. The New American University represents a new model for the American research university, one that breaks the mold that has constrained these institutions.

A SUMMARY OF DESIGN IMPERATIVES FOR THE NEW AMERICAN UNIVERSITY

DESIGN IMPERATIVE 1. ASU MUST EMBRACE ITS CULTURAL, SOCIOECONOMIC, AND PHYSICAL SETTING: LEVERAGING PLACE

Academic institutions leverage place by embracing their cultural, socioeconomic, and physical settings. Colleges and universities are situated in regions with particular heritages, cultures, and aspirations, and scholars at these institutions are uniquely positioned to address the problems of their regions, and to offer perspective on the distinct historical, cultural, social, demographic, political, economic, technological, and environmental forces shaping them. A focus on place means learning from local knowledge, as well as considering the local relevance of research. If an institution is socially embedded, meaningful and productive relationships between the university and its surrounding community, region, and state will flourish. Not least among these is the role of the research university as a primary driver for regional social change, social and cultural learning, and appropriate economic development.

DESIGN IMPERATIVE 2. ASU MUST BECOME A FORCE, AND NOT ONLY A PLACE: SOCIETAL TRANSFORMATION

Research universities are the preeminent catalysts for societal change—no institution possesses more potential to transform society: improving the human condition, fostering sustained social advancement and economic growth, and providing us with the tools we need for better planetary stewardship. No corporation, no industry, no government agency can rival their scope and impact, because universities alone exist solely to produce and disseminate knowledge. Never before has the impact of knowledge been greater, and no academic institution has had, or continues to have, more influence than the research university. ASU is one of only 300 major research institutions in the world, and, as such, has the potential to generate new knowledge that may influence almost every aspect of our future.

DESIGN IMPERATIVE 3. A CULTURE OF ACADEMIC ENTERPRISE: ASU AS KNOWLEDGE ENTREPRENEUR

Enterprise takes many forms in the academy—it is the signal characteristic of the drive and passion that informs all groundbreaking scholarly and creative endeavor. Enterprise inspires inquiry, and fosters the originality and independence of mind that make new knowledge possible. Intellectual capital is the well-spring of a great university, and the source of its potential to transform our world. It is also the source of an institution's prosperity—those who conduct groundbreaking research, developing new knowledge and new products with commercial application, have the capacity to generate significant revenues for the university, and to encourage investment in our product. To the extent that we make an original contribution to our disciplines, or, indeed, break free from conventional disciplinary or organizational constraints, our work may be said to exhibit enterprise.

DESIGN IMPERATIVE 4. PASTEUR'S PRINCIPLE: USE-INSPIRED RESEARCH

The complexity of the challenges for global success that confront us makes it mandatory to balance the need for, and importance of, continuing basic research (fundamental discovery) with a research agenda focused on addressing actual and immediate problems. Much university research is necessarily esoteric because we are involved in the discovery of fundamental knowledge, but we must integrate the advancement of knowledge with the transformation of society. If academic research is to be a force for societal transformation—if we are to improve the human condition—we must consider the social implications of our research, and harness our knowledge for maximum societal benefit. This is an approach to scholarship that could be termed use-inspired, and will increasingly guide the ASU research enterprise.

DESIGN IMPERATIVE 5. A FOCUS ON THE INDIVIDUAL: OUTCOME-DETERMINED EXCELLENCE / A COMMITMENT TO INTELLECTUAL AND CULTURAL DIVERSITY

Our nation's research universities are concerned with a certain academic profile in their student body. They have defined their academic excellence by the academic qualifications of their incoming students—

an input-driven model. ASU focuses instead on outcome-determined excellence—that is, we admit students with differing interests and indicators of intelligence and creativity, even different levels of high school preparation. There is no single profile to which a student seeking admission to ASU must conform. The university will not be limited exclusively to the verbally and mathematically gifted, nor the most intelligent children of the most successful families. We welcome these gifted students, but seek greater diversity in our student body. And we will judge the success of our university by the success of each student on a case-by-case basis. Implicit in our focus on the individual is a commitment to intellectual and cultural diversity.

DESIGN IMPERATIVE 6. INTELLECTUAL FUSION: INTERDISCIPLINARITY / MULTIDISCIPLINARITY / TRANSDISCIPLINARITY / POSTDISCIPLINARITY

If we are to advance knowledge in the face of its rapidly changing nature, and come to terms with the explosion of new knowledge that characterizes the academy in recent decades, a new and more fluid organization is urgently needed. Intellectual fusion is the cognitive norm in scholarship, whereas the fragmentation imposed by disciplinary categories is an historical social construct, however useful.

Knowledge does not fall within strict disciplinary categories, yet an institutional organization that derives from the medieval academy prevails. It is no longer sufficient to neatly categorize knowledge into disciplinary-based academic departments—the core disciplines are but one element of our intellectual identity. Accordingly, the New American University encourages teaching and research that is interdisciplinary, multidisciplinary, transdisciplinary, and post-disciplinary, leading, where appropriate, to a convergence of disciplines, an approach that might more accurately be described as intellectual fusion.

DESIGN IMPERATIVE 7. SOCIAL EMBEDDEDNESS: PUBLIC SERVICE / COMMUNITY ENGAGEMENT / OUTREACH

Public service—or community outreach—is intrinsic to ASU's mission as a public metropolitan research university, and central to the vision of a New American University that is linked to its region and the needs of its day; that balances its commitment to teaching with world-class research conducted for the

public good; and that takes on major responsibility for the economic, social, and cultural vitality of its region. Public service has long been a defining characteristic of ASU, and we expect that commitment to grow with each coming year. Because our approach to public service is comprehensive, and because we conceive of public service in such broad terms, the extent of our commitment to the community and region is perhaps best conveyed by the concept of social embeddedness.

**DESIGN IMPERATIVE 8. GLOBAL ENGAGEMENT:
TRANSNATIONAL / TRANSCULTURAL**

Because research universities bear partial responsibility for the future of our planet, there is no aspect of our teaching, research, or public service that does not possess global implication. ASU faculty members belong to an international community of scholars, and through their scholarship and creative endeavor implicitly address a global audience. Even service to the communities immediately surrounding our campuses can have bearing worldwide—through the development of innovative approaches to universal societal problems, ASU can establish programs and practices with application anywhere in the world. If we are to build an institution that proves of lasting value to the state and the nation in the centuries ahead, we must forge partnerships with peer institutions around the world, and make an institutional commitment to global engagement that is thoroughgoing.

Based on the inaugural lecture of Michael M. Crow as he assumed the presidency of Arizona State University, November 11, 2002

Updated February 2005

Arizona State University | ASU in the Valley



Arizona State University's students come from every state in the U.S. and 154 countries to study in programs ranging from nursing and law to business, engineering, architecture, and agribusiness. ASU is known as a powerhouse in national scholarship circles, producing more winners of top national scholarships than virtually any other public university in the United States. Recent accomplishments include:

- Three 2004 Goldwater Scholars, the top national scholarship for students in science, math and engineering. ASU students have won 28 Goldwater awards in the past 11 years, placing the university among the top schools in the country for the award.
- A member of the 2004 USA Today All-USA Academic First Team, the top 20 undergraduates from across the nation. Nine ASU students have earned prestigious first team honors in the past 12 years, the best record of any public university in the nation. Only Harvard and Yale have more.
- ASU is third in the nation among public universities in its enrollment of freshmen merit scholars. In fall 2004, 162 new National Merit Scholars enrolled as freshmen.
- Two congressional 2004 Udall Scholars, a competitive award for students intending careers in environmental issues.
- A record 10 Fulbright Scholars did graduate study abroad in 2003-2004, placing ASU 7th in the nation among public schools for these top awards.

Fall 2004 Undergraduate Student Profile:

- 7,631 first-time freshmen enrolled including 162 National Merit Scholars and nine Fulbright Scholars
- Their average ACT score: 23.33; average SAT score: 1167.45
- 5,506 transfer students enrolled
- 80% enrolled full time in the fall
- 24% are from ethnic minority backgrounds, with Hispanic students having the largest representation at 13%
- 3.1% are international students
- The average age is 22; 53% are women
- 2,696 undergraduates are enrolled in the Barrett Honors College

Fall 2004 Graduate Student Profile:

- 12,113 graduate students; 53% are women
- 55% are enrolled full time
- The average age is 33
- 16.5% are from ethnic minority backgrounds, with Hispanic students having the highest representation
- 16.7% are international students, with the largest representation from India



GREAT TEACHERS

Many ASU faculty are renowned in their fields of study, which span the arts and humanities to nanotechnology and deep space exploration. Some of their many achievements include:

- ASU welcomes more than 150 new faculty members during the 2004-2005 school year. Among them are Dr. Roy Curtiss III, co-director, Center for Infectious Diseases and Vaccinology, the Biodesign Institute, and a member of the National Academy of Sciences.
- Others joining the ASU include Dr. Bert Holldobler, Foundation Professor for Life Sciences, Pulitzer Prize-winning author and leading figure in the emerging fields of sociobiology and biocomplexity; and Dr. Vijay Vittal, Electrical Engineering Professor, Ira A. Fulton School of Engineering, member of the National Academy of Engineering and recipient of the ISU Outstanding Achievement in Research award, and the IEEE Outstanding Power Engineering Educator award.
- President George W. Bush has named Arizona State University Professor of Geological Sciences Laurie Leshin to the President's Commission on the Implementation of U.S. Space Exploration Policy. The Commission will advise NASA on the long-term implementation of the President's vision. Leshin is the only Arizonan appointed to the critically important nine-member commission, and one of four scientists.
- Three ASU faculty members received John Simon Guggenheim Memorial Foundation Fellowships in 2003. The Fellowship is given to established scholars and researchers who have achieved prominence in their fields and is evidence of a strong senior research faculty at ASU.
- ASU faculty members Fernando Ponce, David Smith, and John Venables have joined a prestigious group of scientists honored for their outstanding professional accomplishments. All three were elected by their peers to the status of Fellow within the American Physical Society.
- ASU ranks in the top 25 for National Science

Foundation (NSF) CAREER Awards over the last four years. During that time, 18 ASU faculty members have received CAREER Awards, which are for young faculty members considered most likely to become the academic leaders of the 21st century.

GREAT COMMUNITIES

Arizona State University is directly engaged as an educational, economic, social, and cultural force in the Phoenix metropolitan community. The benefits that Arizona receives from ASU are fundamental and diverse. The university educates thousands of students yearly, preparing them for an increasingly complex and competitive world; is an important center for pure and applied research, providing technical expertise to local businesses on issues such as economic and environmental policy; and enriches the quality of life for local residents by sponsoring a wide range of cultural and athletic events.



- ❖ The ASU College of Nursing serves the community in many ways, including the Breaking the Cycle Community Health Care Clinic, which provides free or low-cost family planning services for those without health insurance.
- ❖ ASU's Academic Community Engagement Services (ACES), known for many years as the ASU Service Learning Program, celebrated a decade of successful partnering with the community in 2003. The program has spread its outreach to encompass 34 programs at 16 different sites, including adult GED preparation and literacy classes for the children's parents. More than 4,000 ASU students have given over 600,000 hours of service.
- ❖ ASU's endowed Center for Nonprofit Leadership and Management seeks to improve the quality of life in communities by enhancing the performance of non-profit organizations. Developed from ASU's American Humanics program, the Center enhances the effectiveness of nonprofits, especially those involved in positive youth development and human services.

One approach to measuring the contribution of a university to a local economy is to trace the effects on local jobs and incomes of the full range of spending events triggered by the university, e.g., its payroll and non-payroll expenses and the spending of students. In FY 2002, ASU employed 16,150 faculty, staff and students and had a total payroll of \$504 million. The University indirectly generated another 1,800 Arizona jobs and earnings of \$65 million when it spent \$249 million on construction projects, equipment, and other goods and services necessary for University operations. Yet another round of economic impacts arises from the consumer spending of faculty, staff and students. A total of 10,050 in-state jobs with earnings of \$219 million were required to produce the goods and services purchased by ASU faculty, staff and students.

The above-mentioned spending events create ripple or multiplier effects within the local economy when the firms that supply goods and services to the University community place upstream demands on other producers, when the employees of these firms make additional purchases themselves, and when state and local governments in Arizona spend additional tax revenues. The multiplier effects themselves amount to 9,020 jobs and earnings of \$265 million. When all economic interdependencies are accounted for, the spending of the ASU community was responsible for more than 37,000 Arizona jobs and earnings of \$1.1 billion in FY 2002.

An alternative approach to measuring the economic value of a university is to focus on the higher productivity and earnings of its graduates. The connection between education and earnings is unmistakable. Nationwide data for 2000-2001, for example, show that male workers between ages 35 and 44 earn 94 percent more if they have completed college than if they have only a high school degree. For women in the same age group, the college earnings premium is 81 percent. The return to education has been rising steadily over the past two decades. In the early 1980s, the college earnings premium was only 40 percent for both men and women.

The costs of attending college include tuition and fees paid by the student, state funds used to support higher education and, most significant in size, lost earnings during the time the student is in school. The benefits of a college education greatly

outweigh the costs, however. The present value of the additional lifetime earnings made possible by an undergraduate education exceeds the total costs by a margin of \$283,000 for a male student and \$153,000 for a female student. In the language of finance, the inflation-adjusted internal rate of return to a college education is 14 percent for men and 12 percent for women.

Because higher education has such a dramatic effect on an individual's lifetime earnings, total income in the state of Arizona is now \$1 billion higher because of the undergraduate education services provided by ASU over the past three decades. This is true despite the fact that almost one-half of ASU alumni end up leaving the state.

Despite the high return to education, imperfections in the financial system make it likely that investment in human capital, unlike physical capital, will be under-funded.

This is the principal economic argument in favor of public support for higher education. In FY 2000, Arizona spent an average of \$3,134 per student to help cover the operating expenses of its colleges and universities. This represents 63 percent of the national average and places Arizona 48th lowest among the fifty states. In-state tuition at Arizona's four-year public universities averaged \$2,346 per student per year in FY 2000. This is 67 percent of the national average and places Arizona 47th lowest among the fifty states. The combination of low state appropriations and low tuition rates forces Arizona's colleges to implement low-cost methods of educating students.

PRIMARY ECONOMIC IMPACTS

ASU Economic Impact

Jobs: Direct	16,150
Payroll: Direct	\$504 million
Jobs: Total Impact	37,000
Earnings: Total Impact	\$1.1 billion

Source: Center for Business Research, L. William Seidman Research Institute, W.P. Carey School of Business, ASU



ASU RANKS 3RD IN NATION FOR FRESHMAN NATIONAL MERIT SCHOLARS

Arizona State University has vaulted to third in the nation among all public universities for the number of freshman National Merit Scholars enrolled this year, and seventh overall, according to a report just released. ASU enrolled a record 173 National Merit Scholars in the fall 2003 freshman class.

The annual report by the National Merit Scholarship Corporation listed 380 public and private institutions that enrolled a total of 8,254 scholars last fall. Following are the top 20 schools: Harvard, 378; University of Texas at Austin, 258; Yale, 228; University of Florida, 224; Stanford, 217; University of Chicago, 182; ASU, 173; Rice, 173; University of Oklahoma, 170; Princeton, 165; Washington University, 162; USC, 161; MIT, 151; Vanderbilt, 143; University of North Carolina, Chapel Hill, 143; Brigham Young, 140; Texas A&M, 137; NYU, 136; UCLA, 125; Duke, 103.

National Merit Scholars represent the top one-half of one percent of all high school students who take the Preliminary SAT. For the past four years ASU has ranked among the top 20 universities in the country.

SECOND MARS LANDING PROMISES TO EXPLORE ASU FINDINGS

On Saturday, January 24, at 10:05 Arizona time, the Opportunity Rover, the second of NASA's twin Mars Exploration Rovers (MER), landed on a very interesting part of Mars known as Meridiani Planum. A crowd of about 500 onlookers cheered as NASA executed a flawless landing in what turned out to be a small, shallow crater in an exotic gray plain, with weathered rock outcroppings. Arizona State University scientists watched it all unfold with anxiety, anticipation, jubilation and a great deal of personal and professional interest. Meridiani Planum is literally on the opposite side of Mars from Gusev Crater, where the first rover, Spirit is currently picking its way across a flat, ochre-colored, dust and rock covered landscape. Opportunity, ASU scientists hope, is about to explore a landscape that is significantly different, especially when you look at it in infrared light.

ASU'S LESHIN NAMED TO COMMISSION TO PLAN FUTURE OF NASA

President George W. Bush has named Arizona State University Professor of Geological Sciences Laurie Leshin to the President's Commission on the Implementation of U.S. Space Exploration Policy, a commission that he announced would be formed in a speech on January 14.

The President detailed an ambitious new mission for NASA and, according to White House documents, "formed a Commission on the Implementation of U.S. Space Exploration Policy to advise NASA on the long-term implementation of the President's vision." Leshin is the only Arizonan appointed to the critically important nine-member commission, and one of four scientists.

ARMY AWARDS ASU \$43.7 MILLION FOR FLEXIBLE DISPLAY DEVELOPMENT

February 10, 2004 -

The U.S. Army has awarded Arizona State University a \$43.7 million, five-year cooperative agreement to establish the Army Flexible Display



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Center, where flexible, low-power computer displays will be developed that can be continually refreshed with new data and carried in the field - a device that will revolutionize combat strategy.

"Think of these displays as thin computer screens that can be rolled up or folded and put in a warfighter's pocket," said Greg Raupp, ASU professor of chemical engineering, Associate Vice President for Research, and director of the center. "The displays would be integrated with wireless communications technology linked to central command and control, enabling continual updating of information vital to a successful operation."

For example, these real-time displays will provide improved operational communications by supplying information on troop and enemy positions and movements, weather and environmental conditions, and other important variables providing dynamic field intelligence.

ASU EARNS TWO U.S.AID GRANTS

ASU has been awarded two U.S.AID grants, totaling \$600,000. These grants (\$300,000 each) awarded to the College of Architecture & Environmental Design (CAED) and the Ira A. Fulton School of Engineering, set a new precedent for ASU, says Jorge De los Santos, executive director of the Office of Pan American Initiatives.

"We rarely receive funding of this magnitude from U.S.AID," says De los Santos, who was instrumental in establishing ties with representatives of the U.S. Agency for International Development. "When we first began working with both colleges, we didn't realize that they were, in essence, competing for the same funds. It's great to hear that both partners were awarded well-deserved grants."

The grants were submitted in partnership with Instituto Tecnológico de Sonora-ITSON (Architecture) and Tec de Monterrey (Engineering), both located in Mexico.

In the history of ASU, the university has only received two U.S.AID grants, according to De los Santos, who hopes this will serve as an example for other colleges to follow.

ASU FACULTY MEMBERS RECEIVE INTERNATIONAL FULBRIGHT AWARDS

On March 10, 2004 - Faculty from the College of Public Programs and ASU West are recent recipients of Fulbright awards that allow for travels and

studies in Lithuania, Morocco and Poland during the academic year.

Established in 1946 under legislation introduced by the late Senator J. William Fulbright, the Fulbright Scholar Program aims to build mutual understanding between the people of the United States and 140 other countries.

Dan H. Fellner, a faculty associate at ASU's Walter Cronkite School of Journalism and Mass Communication, has received a grant through the new Fulbright Senior Specialists Program and will teach an intensive course in public relations this summer in Lithuania.

Pambuccian, associate professor of mathematics in the Integrative Studies Department within ASU West's College of Arts and Sciences, spent the fall semester at the University of Bialystok in Bialystok, Poland. He conducted research into hyperbolic geometries.

"Having two professors selected for the 2003 - 04 Fulbright Scholar Program is indicative of the excellence of ASU West's faculty," says Mark Searle, vice provost of academic affairs.

U.S. NEWS & WORLD REPORT RANKS GRADUATE EDUCATION: W. P. CAREY MBA RANKS 29TH IN THE NATION; 14TH AMONG PUBLIC PROGRAMS HIGHEST STANDING IN SCHOOL HISTORY

The W. P. Carey MBA at Arizona State University ranks 29th in the nation - the highest ranking in the school's history - according to the latest survey by *U.S. News & World Report*.

"This survey is an early reflection of the momentum created by the W. P. Carey naming and gift," observed Philip Regier, interim dean. "We are gratified to be recognized for the quality of our people and programs, and with leadership from our new dean, Robert E. Mittelstaedt, Jr., we are confident that our stock will continue to rise."

The U.S. News survey placed the W. P. Carey MBA 14th among publicly funded programs. The W. P. Carey MBA - Evening Program was ranked 17th, and four disciplines were listed in the top 25: supply chain management was rated 8th, information management was 19th, health sector management was 20th and accounting was 23rd.

"Only three business schools in the nation had more students employed three months after graduation than we did," said Dennis Hoffman, associate dean for graduate programs. "Our high placement

rate reflects the hard work and dedication of faculty, staff and students in connecting our program with corporate America during a challenging economic environment."

In the past year, the W. P. Carey MBA has expanded its programming in China and has diversified its delivery options.

The W. P. Carey MBA Beijing celebrated its fifth anniversary last fall soon after the launch of the W. P. Carey MBA Shanghai. The Shanghai program has been described as possibly the most illustrious MBA class in the world, enrolling 65 CEO level executives of China's state-owned enterprises and a sampling of government officials. W. P. Carey is the first business school to form a partnership with the Chinese government in the delivery of an educational program. In June, the W. P. Carey MBA Shanghai will launch the Economic Club of Shanghai, an executive forum modeled after the school's successful Economic Club of Phoenix.

FORD FUNDS DIVERSITY STUDY PROPOSAL

ASU researchers with the Women of Color Research Collective (WoCRC) based within the Intergroup Relations Center have garnered a \$300,000 Ford Foundation grant to study diversity efforts in American universities.

The Ford Foundation, created with bequests by Henry and Edsel Ford, strives to strengthen democratic values, reduce poverty and injustice, encourage international cooperation, and promote human achievement.

W. P. CAREY MBA TO LAUNCH PROGRAM FOR EXECUTIVES IN MEXICO CITY

May 11, 2004

A delegation from ASU traveled to Mexico City this week to finalize a partnership between the W. P. Carey School of Business and Instituto Tecnológico Autónomo de México (ITAM) to deliver the W. P. Carey MBA in Mexico City starting in September.

The W. P. Carey MBA Mexico City will be structured along the lines of the W. P. Carey MBA - Executive Program, which has a 25-year track record of success on the Tempe campus. The program broadens the W. P. Carey School's global portfolio, which currently includes W. P. Carey MBA programs in Beijing and Shanghai.

"We expect to enroll students from the highest tier

of Mexican companies and multi-national corporations located in Mexico City," Mendez said. "We think this program will be very competitive because of our technological capabilities and because of our faculty's global expertise - especially concerning China."

ASU AND MAYO CLINIC FORGE NEW TIES IN RESEARCH AND EDUCATION

New collaborations include a seed fund, shared faculty and joint educational programs

TEMPE, Ariz. -- Arizona State University and Mayo Clinic, Scottsdale, Ariz., are joining forces on several new and exciting collaborations in medical research and education.

The new collaborations include the potential development of joint education programs involving law, business and nursing; setting up a joint seed-fund program to pursue cutting-edge research and technology; collaborative research in bioinformatics and bioengineering; and shared office space on each campus.

Some specific provisions of a potential agreement include:

- Establishment of a seed fund to support the interdisciplinary and translational research projects that are collaborative efforts between ASU and Mayo Clinic scientists. ASU and Mayo will each contribute an equal amount of money to the fund.
- Development of joint education programs.
- Provisions for shared faculty and appointments for Mayo Clinic and ASU faculty at both institutions.
- Shared graduate students and involvement of Mayo faculty in ASU graduate programs.
- Establishment of ASU-Mayo Clinic collaborative partnership offices, one at Mayo and one at ASU.

The collaborations draw from the major strengths of each organization - ASU's recognized leadership in basic research and its advanced programs in biodesign and biotechnology with the Arizona Biodesign Institute, and Mayo's extensive clinical experience, medical education programs and its vertical integration of research spanning basic science, laboratory based clinical investigation, clinical trials and population sciences.

"A great university is one that not only advances scholarly and research activities but also meets the needs of society," said ASU President Michael Crow.

W. P. CAREY SCHOOL OF BUSINESS RECEIVES MULTI-MILLION DOLLAR SUPPLY CHAIN SOFTWARE DONATION FROM I2*June 9, 2004*

The W. P. Carey School of Business at Arizona State University has received a donation of software and services from i2 Technologies (OTC: ITWO), a leading provider of closed-loop supply chain management solutions. The multi-million dollar donation from i2 will augment an IBM-sponsored joint research and teaching initiative in supply chain management which links Arizona State University (ASU) with research laboratories at the Eli Broad College of Business at Michigan State University and the Smeal College of Business at Pennsylvania State University. A fourth laboratory, at the Smurfit School of Business, University College, Dublin, will be dedicated this summer.

MAYO CLINIC, ASU DEVELOP JOINT NURSING PROGRAM*July 2, 2004*

ASU and Mayo Clinic have reached an agreement to collaborate on a new joint nursing program based at Mayo Clinic Hospital in northeast Phoenix. This new program is being created to increase enrollment capacity for nursing students statewide through the combined resources and clinical strengths of both institutions. Nursing students will receive their didactic and clinical training using the ASU College of Nursing curriculum taught by faculty composed of master's level registered nurses from Mayo Clinic in classroom and laboratory learning space at Mayo Clinic Hospital. The ASU College of Nursing - Mayo Clinic campus is scheduled to begin classes with 20 student nurses in August 2005. "The education of medical professionals, including nursing staff, has been a priority at Mayo Clinic for nearly a century," says Victor F. Trastek, M.D., chairman, Board of Governors, Mayo Clinic. "This exciting new program with our partners at ASU will contribute significantly to our ability to deliver compassionate, high quality care to patients here in the Valley and beyond." They are setting up a joint seed-fund program to pursue cutting-edge research and technology, collaborative research in bioinformatics and bioengineering, and shared office space on each campus. Last year the two institutions signed an agreement to advance specific research areas, including neuroimaging, receptor biology, microdevices and vaccine

development. Specific discussions about the ASU College of Nursing - Mayo Clinic campus began in response to the critical shortage of registered nurses at the local, state and national levels. Both Gov. Janet Napolitano and the Arizona State Senate have called on Arizona nursing programs to essentially double their current enrollment by 2007.

FAMILY CREATES FOUNDATION IN PAT TILLMAN'S HONOR*July 29, 2004*

The family of Pat Tillman has created the Pat Tillman Foundation, a private foundation to honor Pat's memory following his death on April 22, 2004, fighting for his country.

The Pat Tillman Foundation seeks to carry forward his legacy by inspiring and supporting others striving to promote positive change in themselves and the world around them.

"We have created this Foundation to honor Pat's memory and carry forward his legacy," says Marie Tillman, Pat's wife and chairwoman of the foundation's board. "Our goal is to inspire and support others that live their lives with a similar spirit and strive for positive change.

NIH TAPS BIODESIGN INSTITUTE TO DEVELOP NEW SERIES OF HIV/AIDS PREVENTION DRUGS

Researchers at the Biodesign Institute at ASU have been tapped to lead development of plant-derived topical medications that would prevent HIV/AIDS and other sexually-transmitted diseases.

A \$7.4 million grant from the National Institutes of Health will fund a collaborative research center headed by Charles Arntzen, who co-directs the Biodesign Institute's Center for Infectious Diseases and Vaccinology. Internationally known for his work on plant-derived vaccines, Arntzen, a Regent's professor in ASU's School of Life Sciences, will be the principal investigator for the project.

The new center draws on the expertise of ASU researchers with diverse backgrounds. It also establishes a public-private partnership with Mapp Biopharmaceutical of San Diego and one of the National Vaccine Testing Centers at the University of Maryland.

The research will focus on developing microbicides, medications that would kill or block sexually-transmitted viruses at the point of contact and could be formulated as gels, creams or time-released appli-

cations such as a vaginal sponge or ring.

"This grant is an example of the success we expect the Biodesign Institute to attract," says George Poste, Biodesign Institute Director. "By engaging scientists from diverse disciplines in new ways and involving the private sector from the outset, we are uniquely positioned to make progress quickly."

Arntzen said that the size of the NIH grant demonstrates confidence in the innovative approach the center will take as well as in the potential of microbicides to fight the spread of AIDS. He believes plant-derived solutions would have benefits over other methods of drug development.

"Many of the countries with significant HIV infection rates do not have sophisticated pharmaceutical production capabilities," says Arntzen. "We believe plant-based options will be easier and cheaper to produce."

Arntzen notes that, even if they are not produced locally, plant-based microbicides are likely to be more stable than chemical compounds, standing up to heat and storage.

ASU'S PHILLIPS BRINGS HOME OLYMPIC GOLD

September 3, 2004

Dwight Phillips, a former member of the ASU track and field team, concluded his stay in Athens in grand fashion earning the gold medal in the long jump competition in the 2004 Olympics.

The Sun Devil star and United States champion in the event recorded a mark of 8.59 meters or 28-2 1/4. The jump, his first in the finals, was just 1 centimeter shy of his personal best.

Phillips is the seventh Sun Devil male track and field athlete to win an Olympic gold medal, and the ninth in the history of the men's and women's program combined.

ASU GETS \$33 MILLION TO SUPPORT EFFORTS WITH K-12 COMMUNITY

Arizona State University has been awarded six federal grants totaling more than \$33 million, all of which will have a direct impact on K-12 education in Arizona.

These research investments by the National Science Foundation, the National Institutes of Health and the Department of Education will flow directly into the community to enrich area schools with teacher

training and other support activities while ASU faculty conduct research that will lead to permanently improving education nation-wide.

"This federal funding is critical to our education mission and our commitment to improve quality of life in Arizona," noted ASU President Michael Crow. "Research projects like these show how investments in entrepreneurial faculty can lead to major benefits for the community."

The grants also exemplify a deep spirit of cooperation in Arizona's education community, as they involve active partnerships and intense collaboration between ASU and other state other educational institutions.

The new grants are:

\$12.5 million from the National Science Foundation (NSF) for "Project Pathways: Opening Routes to Math and Science Success for All Students," a pilot education research program that is aimed at deepening math and science teaching skills by delivering tuition-free advanced teacher training in math and science directly to high schools. 350 high school teachers from four high school districts around the Valley will be involved in the first phase, and ultimately the program will improve math and science learning for more than 50,000 students. Awarded to Marilyn Carlson, CRESMET.

\$4.4 million from NSF's Teacher Professional Continuum program, which aims to bolster the recruitment, preparation and retention of effective teachers in science, technology, engineering and mathematics. It has an initial two-year award of \$1.7 million and a pending \$2.7 million based on progress and NSF funding levels. The program also involves four school districts where ASU researchers will deliver a new graduate course tuition free on teaching pre-calculus-level mathematics. Awarded to Marilyn Carlson, CRESMET.

\$10 million from the U.S. Department of Education to create a model quality university-school Professional Development School that will recruit, prepare, place, and retain high quality new teachers in high-poverty urban and remote rural school districts. \$2.5 million from the U.S. Department of Education's Early Reading First program, which will develop a program to encourage early acquisition of reading skills by preschool children.

ASU SHINES AS DEBATE HOST*October 13, 2004*

More than 2,500 local, national, and international media are leaving Arizona State University with a positive and lasting impression following their experience covering the final 2004 Presidential Debate October 13 at Gammage Auditorium. "This opportunity has shown the world that ASU is a competitive university of the highest caliber," said ASU President Michael M. Crow. In front of a worldwide C-SPAN audience prior to the debate, Crow told of ASU's mission to be an institution of the highest academic quality possible, while also being inclusive and open to qualified students from all walks of society. "We don't want only those students in the top one or two percent of their class, or those who score a magic number on a standardized test," he said. "We want bright, capable, highly motivated students who see an opportunity to join a great school and take advantage of everything ASU has to offer."

Earlier in the day, Crow had welcomed President George W. Bush and Senator John F. Kerry as each arrived at Gammage to do a walk through of the venue. Attending the debate became a reality for many. About 225 lucky ASU students had their names drawn in a lottery that attracted more than 15,000 applications. All of the students ended up getting a ticket to the event. In all, about 1,000 seats opened up following the final security walk through of Gammage.

The 32,000-sq.-ft. Media Filing Center, which was constructed on the Gammage parking lot, was a veritable who's who of celebrity journalists and pundits. Some sightings included the Reverend Jesse Jackson, Michael J. Fox, Walter Cronkite, Andrea Mitchell, Brian Williams, Candy Crowley, Greta Van Susteren, Judy Woodruff, Sean Hannity and Alan Colmes. On the ASU campus, MSNBC had set up its Hardball stage just outside the Memorial Union and a CNN stage was a few feet away on Hayden Lawn. Many ASU students were among the throngs of people holding up campaign signs in support of the candidates. Some students ended up on live TV, either during cut-aways or as guests on some of the news shows. To add even more excitement, Tom Brokaw interviewed Governor Janet Napolitano from the ASU campus for a segment on NBC Nightly News.

BIODESIGN INSTITUTE DIRECTOR GEORGE POSTE NAMED SCIENTIST OF THE YEAR*October 14, 2004*

George Poste, director of the Biodesign Institute at Arizona State University, has been named 2004 Scientist of the Year by R&D Magazine.

Poste's 38-year career has encompassed roles in academia, industry and government, and his expertise extends to disciplines as diverse as molecular biology, pharmaceutical development and biosecurity. The award honors Poste for his career accomplishments as a world-renowned researcher, scholar and policy maker. It also recognizes his leadership in establishing the Biodesign Institute as a confluence of leading edge technologies, says Tim Studt, editor-in-chief for R&D Magazine.

Poste says his capacity for curiosity has always been a great motivator.

"I am never bored," he says. "I am the quintessential kid in a candy shop when it comes to any facet of science or technology. Every single day I come across something that makes me say, 'Wow.'"

PRESCOTT WINS ASU'S FIRST NOBEL

Edward Prescott, the W. P. Carey Chair in Economics at ASU, was named winner of the 2004 Nobel Prize in economic sciences Oct. 11.

Prescott is a professor in the department of economics at ASU's W. P. Carey School of Business and a senior monetary adviser at the Federal Reserve Bank of Minneapolis. He shares the prize with Finn E. Kydland of Carnegie-Mellon University.

In its announcement, the Nobel Committee of the Royal Swedish Academy of Sciences, Stockholm, lauded Prescott and Kydland "for their contributions to dynamic macroeconomics: the time consistency of economic policy and the driving forces behind business cycles." Prescott received notification at his Arizona home at 4 a.m. local time.

BIODESIGN INSTITUTE TO PURSUE AIDS VACCINE*October 29, 2004*

The Biodesign Institute at Arizona State University has received a grant from the National Institutes of Health to pursue promising research into an oral vaccine that stimulates the production of antibodies known to block HIV, the virus that causes AIDS.

Researchers at the Biodesign Institute already have found a way to stimulate an immune reaction to

HIV in the mucosal membranes of mice, blocking the ability of the virus to enter the body. Led by Tsafrir Mor of the Institute's Center for Infectious Diseases and Vaccinology, this research milestone was published in the Proceedings of the National Academy of Science in September.

"We've known for some time that there are a small number of individuals who appear to be resistant to HIV infection despite repeated exposure, and that these individuals have specific antibodies in their mucosal secretions," Mor says. "The challenge was figuring out how to stimulate the production of these antibodies."

The \$446,000 grant, spread over two years, will allow Mor and his colleagues to enhance the effectiveness of the vaccine, test oral delivery using plant-derived production, and generate additional data needed to move the vaccine toward human trials.

FULTON GIVES \$3 MILLION TO ASU'S DECISION THEATRE

High tech visualization facility will play a key role in sustainability through research-based management of urban growth, public health, the environment and social challenges.

Ira A. Fulton, a prominent Valley businessman and philanthropist, has made a \$3 million gift to the Arizona State University Foundation to establish the Decision Theater for the New Arizona -- an advanced visualization tool that will enable policymakers and others to see in detailed three-dimensional representation the environmental consequences of their actions. The computer-driven visualization tool will be central to the newly established Decision Center for a Desert City, formed with a \$6.9 million federal grant to ASU, as well as other ASU projects.

Fulton, the largest single donor in the history of ASU, has previously given \$50 million to the School of Engineering and Applied Sciences, which now bears his name, and \$5 million to the School of Education, to establish a chair in early reading development and reading remediation and in honor of his wife, Mary Lou. Fulton has also established the Fulton Challenge, which matches gifts to the School of Engineering from alumni and students.

ASU's Decision Theater for the New Arizona will feature an "immersive environment" (a 270-degree screen) where researchers will literally see the effects of public policy decisions played out before them.

Using computer models and computer visualization techniques, the Decision Theater for the New Arizona will enable researchers to test the outcomes of decisions made today on such topics as urban growth and water usage, and the effects of policy decisions on public health and on a myriad of environmental and social challenges.

The goal for the Decision Theater for the New Arizona is to provide interactive forums to identify and assess probable outcomes of real world decisions, review the potential impacts of varying policy decisions, and provide visualizations of alternative future scenarios and scientific analyses produced by complex and integrated computer models.

WRIGLEY VAULTS ASU INTO SUSTAINABILITY ELITE Establishes International Institute for Sustainability through founding gift of \$15 million from philanthropist Julie Ann Wrigley

ASU has created the International Institute for Sustainability to deal with global and regional ecological, economic and societal issues in an effort to ensure that humans maintain a sustainable quality of life on Earth. The Institute is being launched with a founding gift of \$15 million from Julie Ann Wrigley, a philanthropist and member of the ASU Foundation board of directors and co-chair of the Foundation's Women and Philanthropy program. In announcing the new institute and the gift, ASU President Michael Crow said he expects the university to quickly join Harvard, Columbia, Stanford and a handful of other institutions around the world as a leader in the important and emerging field of sustainability. The institute is expected to develop into a degree-granting school within two years, Crow says, and would make ASU the first university in the world with a school fully dedicated to research, education and solutions to real-world problems in sustaining life on Earth. "Sustainability is at the intersection of environmental, economic and societal stewardship," Crow says. "The field of sustainability may, in large measure, determine whether life will be possible on Earth in a century or more, but the field is so new that it has yet to be defined. Establishing the institute allows us to bring together the disciplines needed to deal with challenges of modern society -- explosive urban growth, environmental threats and societal inequities." "The International Institute for Sustainability is both the culmination and the beginning of a lifelong dream," Wrigley says. "It's the

culmination because much of my life work has been devoted to working with conservation and the environment and coming up with questions of how we create a better quality of life. The institute is a beginning of a dream, because it will answer some of those questions. I chose ASU because it was the best place to create a world-class institute, and it will have the greatest opportunity to make the biggest difference.” The \$15 million gift provided by Wrigley to the ASU Foundation is a major endorsement of the programs at ASU and of the initiative the university is taking in sustainability, says Jonathan Fink, vice president for research and economic affairs. “To our knowledge, this is the single largest gift ever dedicated to sustainability, and it will give our initiatives a huge boost,” Fink says. “It will allow us to begin to meet the challenges we face today and in the future.” Julie Wrigley’s involvement in the International Institute for Sustainability is a natural outgrowth of her philanthropic activities.

NEW ARIZONA STATE CENTER BRINGS SCIENCE TO POLICY ON THE ISSUES OF WATER RESOURCES AND URBAN GROWTH
Decision Center for a Desert City will utilize the expertise of ASU researchers to help cities face critical decisions on growth and water usage

A new \$6.9-million center at Arizona State University will study the decision processes used to plan and manage water resources and desert city growth. The center, called the Decision Center for a Desert City, could have a profound effect on the future directions of urban growth in arid regions by providing a sound scientific basis to the decisions that balance growth with finite water resources.

The Decision Center for a Desert City (DCDC) is one of three new National Science Foundation-funded centers that will investigate human decision-making under climatic uncertainty. The impact of the NSF centers could be felt for years to come as populations move to areas that struggle to achieve sustainability.

“DCDC is a model of our commitment to research with a purpose, which in this case is ensuring a sustainable future for our desert regions,” said Arizona State University President Michael M. Crow. “ASU’s expertise in climate science, water usage, science and technology policy, and our studies on the

effects of urban growth all come into play as we focus on this increasingly important issue of sustainability in arid regions. We know that growth in areas such as ours is exacerbating the impact of existing drought conditions, making decisions on growth and sustainability critically important to this region and others like it.”

Crow is one of the investigators on the DCDC project. The National Science Foundation is funding three Decision Making Under Uncertainty Centers and two research teams (without centers) in the program. The centers and research teams will produce new knowledge, information and tools related to decision making under uncertainty associated with short-term climate variability and long-term climate change. The program is part of President Bush’s Climate Change Research Initiative.

NASA SPACE ACADEMY

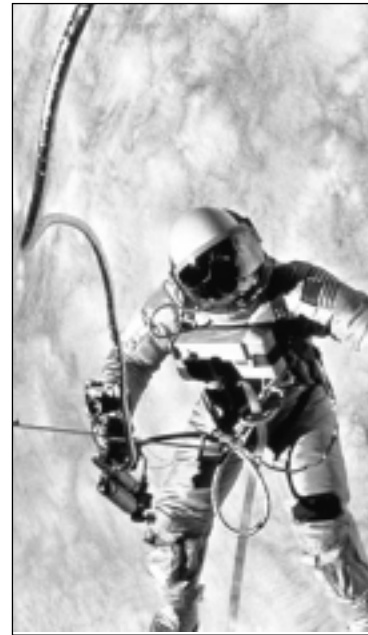
OBJECTIVE:

ASU believes that in order to train the next generation of Earth and Space Explorers NASA needs to establish a virtual U.S. Earth and Space and Exploration Academy.

The report of the President's Commission on Implementation of U.S. Space Exploration Policy emphasized that our nation is embarking on a new era of focused clarity and innovation with regard to space exploration. Our past progress in this area has been driven by a combination of economic opportunity, external political threat, and even tragedy that has yielded a program of fits and starts. In the future, however, our discoveries will be driven by the commitment to explore as a national purpose. Much like Captains Lewis and Clark some 200 years ago, our exploration of this incredible frontier will be bold, prudent, deliberate, and analytical.

ASU researcher Dr. Laurie Leshin served on The President's Commission and was a lead writer regarding the academy concept found in the report which suggested that "NASA use strategic investments to engage universities in training the workforce capable of taking us on the exploration journey." In order to achieve our exploration goals, these students should emerge from their University experience imbued with technical skills acquired from disciplinary depth and visionary capabilities acquired from transdisciplinary experiences. Although classroom training can provide many of the disciplinary basics, we believe that these students need to acquire cross-disciplinary experience through project-oriented, hands-on training. Two aspects of this training will be particularly important. The first is to expose students to broad-based scientific training in Earth and space sciences that mirrors NASA's recent integration of these previously separate programs into the Science Mission Directorate. Educating students across traditionally distinct fields is consistent with the anticipated dramatic breakthroughs enabled by transdisciplinary approaches to generating new knowledge and capabilities. Second, and perhaps even more critical, explorers of the future need experience with both science and engineering. Eliminating the educational divide between these two areas represents one of the greatest challenges to carrying out future exploration that is affordable, credible, and sustainable.

NASA has previously been skillful in advancing transformative, distributed, interdisciplinary science programs such as the NASA Astrobiology Institute, and excellent NASA-center-based student internship programs. What is required now is a greatly enhanced level of direct interaction of NASA with education programs at Universities that are willing to invest significant resources toward fundamentally transforming the way higher education trains Earth and space explorers. The Commission's recommendations reach far beyond simply providing additional scholarships and/or internships of the type already being supported. The great potential here



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is to catalyze change in the way the future NASA workforce is trained by defining the necessary skills this workforce will need and then funding programs directly committed to addressing NASA's needs. The potential of such transformational training programs for enhancing the broader competitiveness and prosperity of our nation are also noteworthy. Explorers trained through these programs will compete with the best innovators in science and technology in the world, because they will have the unique perspective required to define problems worth solving in the 21st century and the skills to set about solving them.

ASU recommends NASA establish an association of 5-7 core Schools of Earth and Space Exploration in a collaborative network known as the U.S. Earth and Space Exploration Academy. This network would consist of only the most innovative institutions, each willing and able to re-conceptualize their disciplines for student training and to produce a new type of graduate. The network would also develop a specific certification that would be difficult to achieve, but accessible to all who have the mettle to try. Lastly, these core institutions would collaborate with other colleges and universities to advance a national opportunity for engagement and to create and enhance outreach to K-12 institutions in the space exploration experience.

FY06 REQUEST:

ASU will continue to advance the Space Academy concept this Congressional cycle. We are presently in the process of responding to an RFI from NASA regarding how a competition establishing such an Academy would be structured. We are hoping a competition will move forward expeditiously. In addition, we urge Delegation support efforts begun last cycle regarding specific authorization.

The following language was included in Section 312 of Senate Report 108-418 accompanying S. 2541 (NASA reauthorization legislation) which passed the Senate Commerce Committee and was ready for floor action last cycle;

“In addition to the engineering school, the Committee believes the agency would benefit from the establishment of a virtual NASA Space Academy. The NASA Space Academy would consist of a consortium of 5-7 core schools of Earth and Space Exploration, competitively awarded. Its primary objective would be to meet challenges associated with research based education/training of transdisciplinary “explorer.” Network would also collaborate to assist in advancing K-12 education relative to space exploration. Institutions would be responsible for the cost of infrastructure and programs. NASA would be responsible for investments in research, training, and outreach and the network itself.”

ASU strongly supports this language being maintained in the Senate and hopefully inserted into the House version if/when the NASA legislation moves this cycle.

Having a robust National Science Foundation (NSF) is critical to the nation's and ASU's research efforts. Roughly 27% of our federal research expenditures in FY04 came from this agency and was secured competitively. It is imperative that NSF's funding continue to increase if ASU is to enhance its research programs.

ASU had the following in expenditure amounts from NSF's directorates in FY2004 totaling \$28.9 million —

Biological Sciences:	\$4.4 million
Computer and Information Sciences and Engineering: ...	\$2.4 million
Education and Human Resources:	\$6.7 million
Engineering:	\$4.6 million
Geosciences:	\$2.7 million
Mathematical and Physical Sciences:	\$4.4 million
Social, Behavioral and Economic Sciences:	\$2.0 million

In addition, ASU also receives funding from 8 different divisions totaling another \$1.7 million

CURRENT STATUS:

The National Science Foundation (NSF), after a cut in its budget in 2005, would see a modest increase of 2.7 percent to \$4.2 billion for its R&D portfolio, with most of the increase going to R&D facilities. As a result, the average NSF research grant would shrink for the second year in a row. NSF's education funding would fall steeply – which is where ASU has had significant success.

FY06 PRESIDENT'S BUDGET REQUEST COMPARED TO FY05 FUNDING.

Biological Sciences:	\$582 million	(+.9%)
Computer and Information Sciences and Engineering:	\$621 million	(+1.1%)
Education and Human Resources:	\$737 million	(-12.4%)
Engineering:	\$581 million	(+3.5%)
Geosciences:	\$709 million	(+2.2%)
Mathematical and Physical Sciences:	\$1.0 billion	(+1.5%)
Social, Behavioral and Economic Sciences:	\$199 million	(+1.0%)



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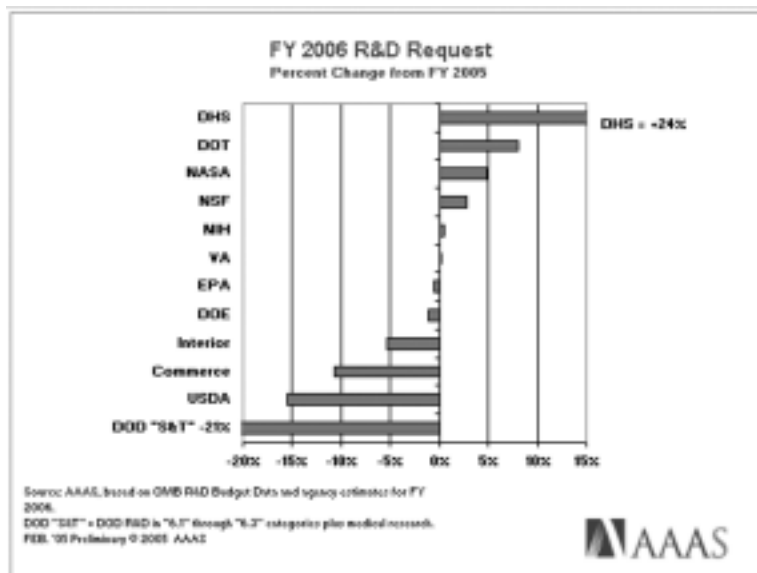
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FY06 REQUEST:

Arizona State University supports FY06 NSF appropriations equal to the authorized level as found in the NSF Authorization Act of 2002. We are hopeful key directorates such as Biological Science, Education and Human Resources, Math and Physical Sciences, will be protected and enhanced.



INTERNATIONAL INSTITUTE FOR SUSTAINABILITY

IIS: CONFRONTING THE CHALLENGES TO URBAN SUSTAINABILITY

The newly established International Institute for Sustainability (IIS) brings together life, earth, and social scientists, engineers, and government and industry leaders to share knowledge and develop practical solutions to the challenges of sustainable development, especially as it relates to urban areas. This collaborative enterprise between scientists and users of scientific information is intended to, among other things, bridge the gap between university-based research and public policy.

For 30 years, ASU's Center for Environmental Studies (CES) brought together researchers and community and institutional partners to spark interdisciplinary, environmental research. In recent years, CES pioneered an approach to urban environmental studies that integrated life, earth, social sciences and engineering, extending the boundaries imposed by discipline-based science. The urban focus was jumpstarted with the Central Arizona–Phoenix Long-Term Ecological Research project and an Integrative Graduate Education and Research Training in Urban Ecology program, and CES leapt into the policy arena with the formation of the Decision Center for a Desert City last year. The new Institute, launched in November 2004 with a founding gift of \$15 million from Julie Ann Wrigley, thus marks the natural evolution of CES into an institution with the expertise, vision, and resources to contribute to solving global problems of sustainability.

WHAT MAKES IIS UNIQUE?

- ASU, the fourth-largest university in the nation and located in the nation's fastest-growing large urban area, is a vibrant and relatively young institution. Here we can more easily embrace collaborative, interdisciplinary approaches to research, education, and integrated solutions than can older universities bound to disciplinary traditions.
- IIS crystallized under the bold leadership of President Michael Crow. His vision of the modern university as an enterprise engaged and embedded in its local, regional, and global communities sparked the formation of an institute dedicated to discovering innovative solutions to the pressing challenges of urban sustainability.
- Phoenix will be the springboard to study and test approaches to urban sustainability. An entrepreneurial spirit has always characterized our desert metropolis. This spirit translates into enthusiastic support of collaborations among university, government, and industry that seek novel solutions to the problems of rapid growth and urbanization.

Initially, IIS will focus upon issues of land-use change, environmental protection, water-resource management, sustainable materials and technologies, human health and well-being, and air quality. We believe that the global community will come to see us as a resource for arid regions and particularly for rapidly growing cities in arid regions around the world.



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SUSTAINABILITY EDUCATION CENTERS

OBJECTIVE:

ASU supports the authorization of Education Sustainability Centers.

BACKGROUND:

ASU is making serious investments in the area of sustainability. In November 2004, building from a \$15M private gift from the Julie Ann Wrigley Foundation, President Michael Crow established the International Institute for Sustainability. Establishment of the Institute is an important step in moving ASU toward President Crow's vision of a New American University. It provides a framework for ASU's existing and emerging strengths in environmental studies, urbanization and public policy, and serves as an incubator for the degree-granting School for Sustainability to be established at ASU by January 2007. When established, this will be the first of its kind in the world. Through the School, ASU will undertake a suite of activities that accomplish the entirety of a research, education and applications agenda aimed toward achieving sustainability. It will prepare future leaders while providing immediate solution options through Inter-disciplinary Research & Education.

We believe that ASU would be extremely competitive if legislation such as the following is introduced again in 2005. We are hopeful our Delegation would support such efforts.

SUSTAINABILITY CENTERS ACT:

Last Congressional session HR 4664, the Higher Education Sustainability Act of 2004 was introduced which would authorize funding for six Sustainability Education Centers across the country to develop and implement integrated environmental, economic, and social sustainable programs. Each sustainability center will focus on multidisciplinary research, education, and outreach at institutions of higher education.

This legislation would create six demonstration centers in Higher Education Institutions across the country and calls for an authorization of \$50 million.

Each Center will use multi disciplinary education, research , and outreach programs that address environmental, social and economic dimensions of sustainability.

Funding will support faculty, staff, and students at institutions of higher education to establish administrative and educational sustainability programs on campus that prepare students for sustainable development careers in the private and public sectors.



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Particular sustainability focus areas will include energy management, green building design and materials, waste management, toxics management, and sustainable transportation.

ANTICIPATED IMPACT OF SUCH LEGISLATION:

Education and training the next generation of scientists, engineers, planners and business professionals can help in the development of new tools and strategies for environmental and resource conservation, energy efficiency and more sustainable development. The legislation would also enable the promotion of good business practices as higher education prepares students for future success and provides real world examples to the business and government sectors of how sustainability practices result in greater productivity.

FY06 REQUEST:

ASU requests support for legislation such as that proposed in 2004 by Congressman Blumenauer's HR4664. We anticipate the legislation to be reintroduced again in 2005 as stand alone legislation. Lead sponsor may also attempt to insert into the Higher education Authorization Act.

HUBBLE SPACE TELESCOPE-RELATED

Maintenance of on-orbit visible/UV space imaging and spectroscopy, and the Hubble Space Telescope.

OBJECTIVE:

Support the Congressional hearings concerning NASA's cancellation of future astronaut or robotic servicing missions to the Hubble Space Telescope. Ensure that the NRC recommendation to service Hubble using the original astronaut servicing plan is given serious consideration. In the absence of any servicing, ensure that key capabilities lost to the science community by the premature demise of Hubble are provided through alternate, cost-effective means.

BACKGROUND:

Grants received from the competitive allocation of Hubble Space Telescope observing time is one of the most important sources of research funding for astronomers at Arizona research institutions (ASU, UA, NAU, etc.). Hubble has been consistently ranked as the nation's most important scientific asset for studying the Universe. NASA has recently decided to cancel any form (either astronaut or robotic) of servicing Hubble. The reasons stated are now attributed to the extra cost of such a mission.

Canceling future Hubble servicing missions almost certainly will result in the demise of Hubble several years in advance of the originally planned date of 2010. Power systems and pointing and stabilization components, which were to be refurbished in the next servicing mission called SM4 in 2006, are expected to degrade and fail. Just as important, two new science instruments (the Cosmic Origins Spectrograph and Wide Field Camera-3) which are nearly ready for installation on Hubble, and would significantly enhance Hubble's imaging and spectroscopic capabilities, may be mothballed. This will impede the progress of new discoveries in space astronomy, and will negatively impact all users of Hubble in Arizona and the nation.

PROGRAM:

NASA Science Mission Directorate

BUDGET:

Despite Congressional willingness to assign emergency funds to NASA to include Hubble servicing, NASA has decided to cancel the program. The only way to save Hubble at this point is to have Congress do it, preferably by appropriating extra money, on top of the President's FY06 request, so that other programs are not damaged. Hubble research grants, awarded through competitive peer review, are a mainstay of funding and student support for ASU astronomers.

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NASA/DOE JOINT DARK ENERGY MISSION (JDEM)

OBJECTIVES:

Ensure adequate funding of NASA's Science Mission Directorate, which provides new mission opportunities to the scientific community. Support the OSTP and OMB initiative to have NASA and DOE collaborate on JDEM and other missions where there is significant scientific overlap between the two agencies. Support the OSTP and OMB initiative to have JDEM competed openly and fairly.

BACKGROUND:

The recently discovered and mysterious "dark energy" that is accelerating the expansion of the Universe has been called the most important problem in modern physics. NASA and DOE have recently agreed to co-sponsor a mission called the Joint Dark Energy Mission (JDEM) to investigate the nature of dark energy. While the Hubble Space Telescope would be able to make important contributions to this field by 2010, the cancellation of future Hubble servicing and its projected early demise increases the urgency for developing and launching JDEM as soon as possible. JDEM, tentatively scheduled for a 2014 launch, would restore the capability for studying the distant Universe that would be lost with the demise of Hubble. The JDEM Science Definition Team (SDT) is being convened in 2004-2005 to define the mission requirements; the observatory construction will be competed to industry – local companies like General Dynamics are very interested in this opportunity; the science investigation and instrumentation for the observatory will then be competed in the science community.

NASA has awarded a JDEM mission concept study grant to Prof. Jon Morse of ASU. The ASU-led team, whose mission concept is called DESTINY, is one of only two funded studies to study the architecture of JDEM. Morse has been named to the JDEM SDT as part of the development process. The primary competition is the SNAP team, managed out of DOE's Lawrence Berkeley National Laboratory (LBNL). The SNAP team has been funded for several years by DOE and has a ~\$30M budget over the next two years, compared to the ASU study funds from NASA of \$200k over two years. The considerable inequity between these two funded efforts will place the ASU team (or any other team, such as the new JEDI effort) at a decisive disadvantage when the science investigation and instrumentation package are solicited. OSTP, NASA, and DOE officials have all announced publicly that JDEM will be competed openly and fairly, however the allocation of federal funds to the development process has thus far not reflected this attitude.

PROGRAM:

Joint Dark Energy Mission (JDEM), NASA Science Mission Directorate and DOE Office of Science.



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BUDGET:

JDEM funding was zeroed-out in the FY05 NASA budget, causing consternation at DOE and in the community. Congressional appropriations language in the FY05 omnibus directed DOE to proceed with the mission even if NASA does not join in. NASA is expected to rectify the situation for FY06 and formally include JDEM in its development budget. JDEM total mission costs are estimated to be \$500M-\$1.2B, with the ASU-DESTINY concept toward the lower end of the cost range and the LBNL-SNAP concept toward the upper end. The science investigation and instrumentation portion would be ~\$100-200M of the total costs, awarded to the PI institution who wins the competition. Prof. Morse is endeavoring to find additional federal funding opportunities through NASA and DOE to achieve a level of parity in the DESTINY technical development to compete effectively with SNAP. The DESTINY team will be submitting a proposal to DOE OS in Spring 2005 for scientific and technical development funding.

NASA–THE ORION MIDEX MISSION

OBJECTIVE:

Ensure adequate funding of NASA's Science Mission Directorate which provides new mission opportunities to the scientific community. This issue is relevant both for ASU astronomers and members of the Mars exploration community in the Department of Geological Sciences.

BACKGROUND:

NASA's Explorer program awards new space science missions to teams of scientists and engineers through an open, competitive peer review process. Explorer missions are regarded as cost-effective experiments with high science impact. ASU astronomers, led by Prof. Jon Morse, are planning to propose the next Medium-class Explorer (MIDEX) mission opportunity possibly in late-2005. The proposed mission, called ORION, will place a wide-field visible/UV camera in high orbit to study the origins of stellar and planetary systems as part of NASA's Origins science theme. The ORION mission is designed to follow up and improve on certain imaging capabilities provided by the Hubble Space Telescope, and is intended for launch in 2011-2012 after Hubble has completed its mission. With the probable demise of Hubble several years prior to the planned 2010 decommissioning, the scientific urgency for a mission with ORION's capabilities may increase significantly.

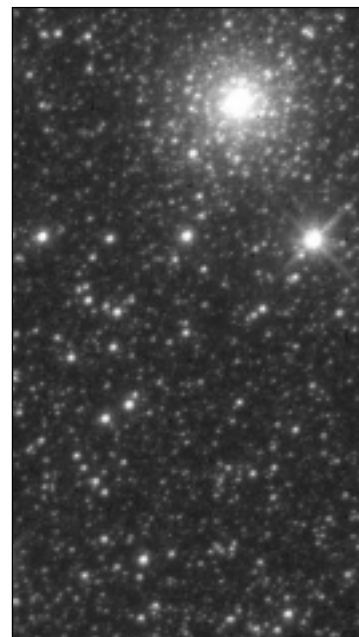
The ORION mission involves an academic/industry/national center partnership which leverages the experience and capabilities of each participant. ASU is the Lead institution providing science rationale, observation planning, and data analysis. The ORION science team includes faculty and researchers from ASU and UA, as well as other leading institutions across the nation. Our NASA center partner is JPL, with whom ASU scientists have worked closely in the past on numerous mission opportunities. While we will choose our industry partners based on prior performance, risk management, and cost, we have worked closely with Arizona-based company General Dynamics to develop the ORION mission concept. We are also collaborating with the detector development laboratory at UA.

PROGRAM:

MIDEX/Explorer Program, NASA Science Mission Directorate. MIDEX missions are awarded through a two-step process. Roughly 35 proposals will be submitted and 4-6 mission concepts will be selected for Phase A study, of which two will be downselected as flight missions.

BUDGET:

MIDEX missions are cost-capped at ~\$170M plus launch vehicle (~\$80M). Launch vehicle costs are negotiated between NASA and the vendor (probably Boeing), and managed by NASA. The overall ORION mission would be managed by the partnering NASA center (JPL). The \$170M payload budget would be split between the NASA center and ASU, depending on work share. Expectations are that between \$50-100M would reside at ASU to oversee construction, operations, and science return of ORION. A large fraction of this allocation may be sub-contracted to Phoenix-area companies during the construction phase.



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ASU PLAYS A MAJOR ROLE IN MARS EXPLORATION

Currently, NASA and the European Space Agency have several operating spacecraft on Mars cooperating in the ongoing investigation of the planet. At the head of these efforts are the twin Mars Exploration Rover missions (MER), Spirit and Opportunity, which are in themselves large, collaborative projects. ASU has significant involvement in every active spacecraft currently at Mars.

The MER missions involve a large, international team of scientists, led by Cornell University. ASU has been deeply involved, both in planning the mission and, now, in carrying it out.

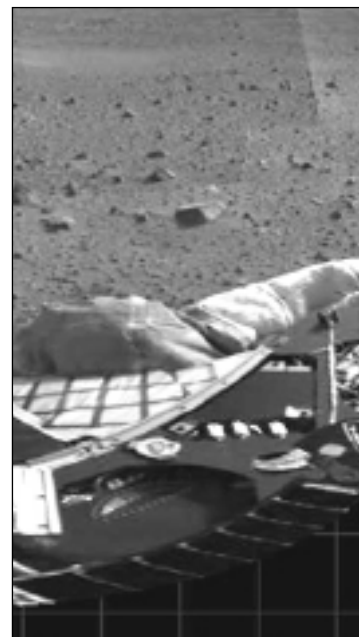
ASU Regents' Professor of Geological Sciences Ronald Greeley and ASU astrobiologist Jack Farmer were involved in picking the landing sites for the rovers, and a discovery by ASU Regents' Professor of Geological Sciences Philip Christensen of hematite (a mineral that usually forms in the presence of water) led to the selection of a place known as Terra Meridiani for the second landing. Christensen's findings through TES on Mars Global Surveyor and THEMIS on Mars Odyssey are responsible for a large part of what we currently know about Mars.

The contributions of ASU will continue, as Christensen and his team will be operating an unprecedented four instruments simultaneously during the MER campaign – TES, THEMIS and the two Mini-TES instruments. In addition, three other ASU faculty members, Greeley, Farmer and ASU research scientist James Rice are members of the MER science team. Greeley and Farmer are both chairs of important decision-making committees, which means that ASU has three scientists who are playing “mission-critical” roles on the rovers' three-month-long odysseys.

ASU is also offering an undergraduate and graduate course centered on the MER rover operations and this is providing an opportunity for students to be directly involved in the project through the ASU curriculum. Students will have the opportunity to study the most recent data being collected by the rovers and be witness to the complex scientific decisions that the science teams will be making during the course of operations.

Spirit, the first of the two rovers, landed successfully at Gusev Crater on January 3, 2004. Opportunity successfully landed at Terra Meridiani on the evening of January 24, 2004. Both missions are expected to continue for approximately three months -- perhaps longer, if conditions are favorable.

While the science is ongoing, it is clear that Meridiani site is likely to yield the most impressive results, with detection by Mini-TES of hematite in the dust surrounding the landing site, and with a nearby bedrock formation that appears to contain sedimentary layering, a possible indication of past water.



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NSF'S NATIONAL ECOLOGICAL OBSERVATORY NETWORK

ASU supports the President's budget request for funding the National Ecological Observatory Network (NEON). In FY03 and in FY04, \$12 million was proposed for this item. We believe ASU is well positioned to be able to compete for NEON funding.

DESCRIPTION

NEON will be a network of networks, a system of environmental research facilities and state of the art instrumentation for studying the environment. Each node in NEON will be a regional observatory, comprised of a core site and associated sites that are linked via cyber-infrastructure. These observatories will be geographically distributed based on the US Forest Service defined ecoregions of the US. Observatories will be selected through an open merit review competitive process.

PURPOSE

NEON will enable integrative research on the nature and pace of biological change at local, regional and continental scales. NEON's advanced technologies and continental scale connectivity will be used to measure all factors that affect the structure and function of ecosystems, for example the power of genomics will be applied to predicting how the spread of invasive species will affect native biodiversity. New environmental technologies like wireless sensor arrays and real-time nanoscale analytical field instruments will be developed, tested and deployed at NEON. NEON's knowledge base, real time and continuous network data, simulation and observation capabilities, and networked capabilities will be an asset for formal and informal education and training.

USERS

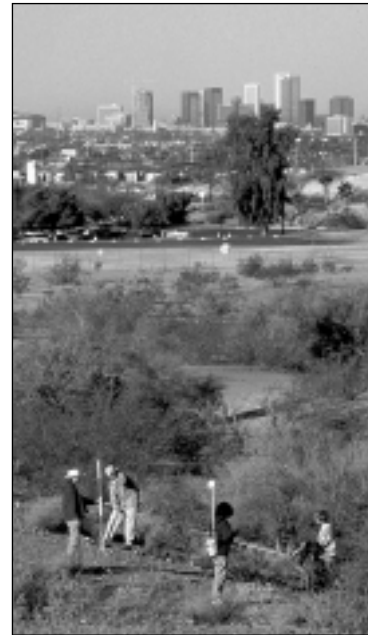
Biological, physical, and social scientists and engineers will use NEON to achieve a better understanding of our nation's environment as they collect, integrate and synthesize data across space and time.

Kindergarten through post-graduate students and teachers will use NEON information for educational activities and NEON facilities for research. It is estimated that 1,400 field biologists will use NEON annually.

Local, state and national decision makers will use NEON to inform planning and policy decisions.

GOAL

A fully functional NEON requires seventeen observatories, the target number based on the number of US ecoregions plus an observatory for Antarctica, established over a 7-year period. Construction cost for each NEON observatory is estimated at \$20 M annually adjusted for inflation.



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FY06 REQUEST:

ASU supports funding for the NEON program which has been in the President's budget recommendation for the last several years.

In FY05, the following language was included in the Omnibus Appropriations Report (H108-792) regarding NEON.

"The conferees do not object to the allocation of not to exceed \$6,000,000 for continued planning and design for the National Ecological Observatory Network if the Director of the Foundation determines such funding is warranted. The conferees reiterate the language in the House report regarding the National Research Council's recommendations regarding this project. The conferees concur that funding provided may be used for a new class of Science and Technology Centers if the Director of the Foundation determines such funding is warranted when measured against other priorities within the agreed upon total for this account."

We feel it is important that this program continue in FY06 and we are hopeful an additional \$6 million per the President's budget request will be appropriated this cycle to complete much of the planning.

SOUTHWEST CENTER FOR ENVIRONMENTAL RESEARCH AND POLICY (SCERP)

The Southwest Consortium for Environmental Research and Policy (SCERP) has conducted more than 300 research projects to address the acute air, water, and health problems plaguing the U.S.-Mexican border region. SCERP’s contribution to this research has helped facilitate numerous solutions to critical environmental problems in this unique expanse. SCERP also conducts briefings for policymakers, border communities, public officials, and business and trade associations. Through these and other efforts, SCERP is perpetuating a model of binational cooperation it pioneered 15 years ago, demonstrating that two very different countries can achieve success together when natural resources are at stake.

SCERP has been very successful through its work with border stakeholders, its education and training of the next generation of border leaders, and its completion of applied research projects with concrete benefits to border communities. Nevertheless, increased economic activities and border trade have overwhelmed existing infrastructure, creating new environmental problems and exacerbating old ones. The population boom on both sides of the border has meant that border communities are falling further behind in their ability to address key local environmental problems. Border communities have created demands for more scientific and applied research than the SCERP budget could accommodate. Consequently, the Southwest Consortium for Environmental Research and Policy (SCERP) respectfully requests \$5,000,000 for its FY 2006 programming.

The proposed budget for FY 2006 will enable SCERP to continue conducting applied research and implementing important programs that impact the border environment and the quality of life of border residents.

BUDGET OVERVIEW:		Total \$5,000,000
PROGRAMS	FY 2006 BUDGET	%
Applied Research (Competitive Projects* and Directed Programs):		
• Applied Border Environmental Research Program*	\$2,500,000	50
• Border Water Quality and Supply Issues Program	\$500,000	10
• Human Environmental Health Program	\$500,000	10
• Air/Energy Program	\$500,000	10
Research Planning and Faculty Development	\$200,000	4
Management and Administration Activities	\$400,000	8
Outreach, Training, and Communication	\$400,000	8
TOTAL	\$5,000,000	100

• SCERP allocates a significant portion of its funding to competitive research initiatives of individual, campus-based projects. Once initiated by SCERP, many competitive research projects are taken over and sustained by other funding sources.

ASU supports the ongoing research at SCERP and has been actively involved with this consortium for an extended period of time.



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TRANSLATIONAL GENOMICS RESEARCH INSTITUTE**TGEN BIOMEDICAL RESEARCH FACILITY UPDATE:**

In 2002, the International Genomics Consortium (IGC) and the Translational Genomics Research Institute (TGen) agreed to build their new headquarters in downtown Phoenix, Arizona. TGen is a not-for-profit organization whose primary mission is to make and translate genomic discoveries into advances in human health.

In August 2003, construction began on the \$47 million, 170,000 square foot headquarters and research facility. TGen's headquarters is planned as the anchor project for the Phoenix Bioscience Center, an alliance bringing together the three major state universities and the City of Phoenix to establish an academic and bioscience research park in downtown Phoenix.

The City of Phoenix financed construction of the new building, which was partly reimbursed by the Health Resources and Services Administration (HRSA) grant funding in FY2003. In FY2004 and 2005, HRSA grant funding also supported the procurement of laboratory equipment for the new research facility.

HRSA Funds Allocated to date:

Fiscal year 2003:	\$1.5 million
Fiscal year 2004:	\$1.4 million
Fiscal year 2005:	\$1.2 million

In December 2004, the building construction was completed, enabling TGen and IGC to move into their new permanent headquarters. Work is continuing to complete laboratory areas on the first and fourth floors of the new facility.

The amount requested for FY 2006 will support new laboratory equipment and continue build-out of laboratory space on the fourth floor. The HRSA funding has provided critical support to TGen, enabling the organization to build out laboratory space, procure state-of-the-art equipment necessary for genomics-based disease research, and helping to recruit top scientists to Arizona – all of which are advancing biomedical science for improved human health care.

FY2006 LEGISLATIVE REQUEST:

\$1.5 million in the FY2006 Labor, Health and Human Services and Education Appropriations bill, specifically in the Health Resources and Services account (Health Resources and Services Administration) for equipment procurement, alterations and renovations, and other health-related activities.

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ARMY RESEARCH LABORATORY'S FLEXIBLE PANEL DISPLAY INITIATIVE

On February 10, 2004, the U.S. Army announced that ASU had won a major competition and was awarded a cooperative agreement to set up the Army's Flexible Display Center (FDC). This 5-year, \$43.7 million award announcement can be found online at: http://www4.army.mil/ocpa/print.php?story_id_key=5661

The ASU-Army Flexible Display Center will be an exemplar genuine collaborative University-Industry-Government partnership and a national asset in flexible display technology research, development and prototype manufacturing. The Center will strategically deploy focused intellectual, physical, financial and management resources to dramatically accelerate full color flexible display technology and catalyze the growth of a vibrant U.S.-based flexible display industry. The Center will spearhead the national effort to provide the Future Warfighter with ubiquitous conformal and flexible displays that are lightweight, rugged, low power, and low cost, and which will significantly enhance the Warfighter's situational awareness and operating effectiveness.

INTELLECTUAL CAPACITY

The Center partnership brings together a synergistic set of diverse competencies operating in a pre-competitive environment that fosters teamwork and sustains innovation to deliver cutting edge scientific inquiry and engineering development. In this context, faculty from ASU's Fulton School of Engineering and the Applied Nano-Bio Systems Center will collaborate with government colleagues from the ARL and other government laboratories; with key academic partners Cornell University, University of Southern California, Penn State University, and the University of Arizona Optical Sciences Center; and with key industrial partners DuPont Displays, Kodak, Honeywell, UDC, USDC, FlexICs, Kent Displays, E Ink, and Optiva, along with technology users and integrators General Dynamics, Raytheon and Three-Five Systems, and Center affiliates General Atomics, ECD, AGI and Southwall. Through this dynamic partnership a comprehensive suite of candidate display technologies, including PLED, SMOLED, cholesteric LCD and electrophoretic, can be effectively developed and fully evaluated.

PHYSICAL ENVIRONMENT AND INFRASTRUCTURE

ASU acquired an unparalleled, state-of-the-art multi-functional display manufacturing R&D facility from Motorola in the ASU Research Park to serve as the FDC headquarters. Within the first year, the facility will have a fully operational 6" TFT and OLED Pilot Line, a state-of-the-art OLED R&D laboratory, and a supporting 4" TFT R&D toolset. Pilot lines will be designed for versatility to maximize the technologies that can be inserted in the display prototypes to be delivered. GEN II photolithography capability will come on-line in the second year of operation, and



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full GEN II Pilot Line capability will be established in the fourth year with the 6" line subsequently transitioning to R&D service. These powerful, concentrated resources "under one roof" will enable intensive collaborative technology co-development supported by research, and will promote success in transitioning emerging technologies into prototypes and off-the-shelf products that support the Army Transformation.

FINANCIAL CAPACITY

Center activities will be enabled through the highly leveraged resources of the federal government and substantial co-investment of ASU and its industry partners. The State of Arizona has recently committed more than \$485 million to ASU to establish new research teams and large scale research facilities. This financial foundation enables ASU to aggressively co-invest in the FDC, including \$25 M for acquisition of the Center facility (note that the original cost of the building exceeded \$100 M), \$7 M for GEN II Pilot Line tools, and \$0.8 M for the OLED R&D laboratory. Industrial partner five year co-investment commitments in Center operations and infrastructure exceeds \$16 M; the total ASU plus partner co-investment provides better than a 1:1 leveraging of the Army investment. Moreover, the value of in-

kind contributions to the Center mission at partner locations is approximately \$84 M. Total leverage of the Army investment for the overall effort is therefore 3:1.

DISCIPLINED BUSINESS-ORIENTED FOCUS

In ASU's implementation model, the Center management structures and processes provide strategically-guided decision-making, effective project and IP management, aggressive performance metrics and clear accountabilities in the framework of full partner engagement and rapid deployment. In addition, we will seek creative opportunities to leverage our collective intellectual, physical, and technological capability to establish one or more "Product Cooperatives" that could substantially accelerate technology advancement and market readiness, enhance prototyping and manufacturing capacity, and strengthen the domestic flexible display industry overall.

THE BIODESIGN INSTITUTE AT ARIZONA STATE UNIVERSITY

The vision for The Biodesign Institute at Arizona State University is to make it the benchmark for excellence in use-inspired, collaborative researched focused on the intentional manipulation of the biological systems. The Biodesign Institute will be a catalyst for innovation, facilitating the multidisciplinary investigations in basic science and engineering that are required to design the critical biotechnology solutions of the 21st century. The ability to improve the human condition has never been greater. Mankind can now observe the most basic building blocks of life, providing knowledge that can be used to cure and prevent disease, remove limitations caused by injury, renew our environment and secure a safer world.

The question no longer is whether we can do these things, but whether we will. The barriers to scientific innovation are functional, economic, social and political, while the need for solutions is increasingly urgent. To solve these challenges, The Biodesign Institute at Arizona State University is taking a bold new approach to improving human health and quality of life.

There are 9 centers within The Biodesign Institute at Arizona State University:

- 1. Center for Applied NanoBioscience: *Frederic Zenhausern, Director***
The focus on applications will provide a critical link between basic nano/biosciences and engineering research, improving the monitoring of health and the treatment of many diseases. The goal, is to apply advances in nanoscience, molecular biology and genomics to a new generation of enabling biological tools based on nano- and micro-scale technologies in order to better understand disease at the molecular level.
- 2. Center for Bioelectronics and Biosensors: *Joseph Wang, Director***
The focus on nanobioelectronics will enable the interfacing nano- and biomaterials with electronic transducers. Such integration leads to enhanced biosensors for clinical diagnostics, security surveillance or environmental monitoring and to improved biofuel cell devices. The goal is to design an efficient electronic transduction of biorecognition events (such as protein and DNA interactions) towards effective biosensing devices for environmental, security, and clinical monitoring.
- 3. Center for BioOptical Nanotechnology: *Neal Woodbury, Director***
Biology provides us with myriad examples of molecular and nanoscale devices that are extremely specific in their functions and tightly controlled. This includes molecular machines that read and write entire genomes of DNA without error, agile sensing and remediation systems that not only detect foreign agents in the body but initiate a series of



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responses to remove the threat, and solar energy converters that operate at near 100% quantum efficiency. The goal is to use the tools and lessons of Photochemistry and Photobiology to integrate (bio)molecular sciences with materials engineering and solid state electronics resulting in the development of molecular devices and nanoscale hybrid electronics. Expected applications of this technology include biosensors, implants, pharmaceuticals, novel biomaterials and nanoscale power sources with application in the areas of biomedicine, environmental remediation/monitoring, threat detection and agriculture.

4. Center for Evolutionary Functional Genomics:

Sudhir Kumar, Director

Genome sequencing and functional genomic data are growing exponentially and posing tremendous computing challenges. Finding solutions will influence progress in both health-related research and information technology. The goal is to understand how genes, gene families and genomes of model organisms change over time and to elucidate the gene interaction networks responsible for development of a single fertilized egg cell into a complex adult animal with trillions of cells.

5. Center for Infectious Diseases and Vaccinology:

Charles Arntzen and Roy Curtiss, Directors

The goals are to determine and understand mechanisms of host-pathogen interactions leading to disease, latency and induction versus evasion/suppression of mucosal, systemic and cellular immunities. To identify and characterize protective antigens from established and emerging pathogens with their modification to enhance induction of optimal immune responses. To design and develop means for protective antigen production and/or delivery systems using plants and attenuated live bacteria and viruses to induce protective immunity in agriculturally important animals and humans. To analyze and establish the cellular and systemic mechanisms by which animal and human hosts respond immunologically to pathogens and to vaccines designed to prevent or therapeutically eliminate infections by those pathogens. To develop and perfect means for manufacturing and delivery of low-cost, thermostable, needle-free vaccines to

enhance productivity of agriculturally important farm animals and to improve human health throughout the world.

6. Center for Neural Interface Design:

Jiping He, Director

Brain/spinal cord injuries, stroke and Parkinson disease cause loss of motor and cognitive functions and create financial and emotional burdens to society. By applying advanced nano/MEMS technology to develop versatile and robust neural interfaces we can reliably obtain control signals from still intact brain areas to control neuroprosthetic devices so that paralyzed people can regain motor functions and communicate in their environments for more productive and independent life.

7. Center for Protein and Peptide Therapeutics:

Lokesh Joshi, Acting Director

The program will generate protein based pharmaceuticals that are clinically applicable for targeted disease, cancer and wound healing. These disease processes affect broad segments of the population and rank among the top causes of mortality.

The goal is to identify, characterize, and optimize biologically active motifs as pharmaceuticals. The basic premise of the center is that molecules are engineered to contain a “transduction domain” (which allows the molecule to cross the cell membrane) and a “biomimetic domain” (which mimics the effect of an activated intracellular protein). This technology represents a novel approach in that cellular receptors and intracellular signaling cascades are bypassed and the product functions at the level of the intracellular target protein. This technology has the potential to generate the first “proteomic” based products developed for therapeutic applications.

8. Center for Rehabilitation Neuroscience and Rehabilitation Engineering: *James Abbas and Ranu Jung, Co-Directors*

The goal of this Center is to improve the quality of life of individuals with disabilities by designing and developing technology to counteract the effects of neurological disorders. Specific projects are designing techniques for enhanced therapeutic

practice, investigating the effects of neurotrauma, and developing devices for improved health, fitness, and assistance with daily activities at home or in the workplace. The scope of our research activities includes the design and development of algorithms and devices to interact with the nervous system, the evaluation of technology in whole animal and human subject trials, and the transfer of these technologies to biomedical industry and clinical practice. The activities of this Center will help to reduce the impact of neurological disability through a variety of projects directed at replacing functionality of the impaired nervous system and/or promoting reorganization and repair of neural tissue to restore neural system function.

9. Center for Single Molecule Biophysics:

Stuart Lindsay, Director

The program has implications for both basic biology and for biotechnology. Understanding gene regulation, molecular signaling and molecular transport in cells may lead to cures for disease. The experimental techniques developed may lead to improved biosensors and new technologies for sequencing DNA, for example. The goal is to understand some of the physical processes on which life is based using the simplest model systems, either a single molecule or a small number of interacting molecules.

NIH BIOMEDICAL COMPETITIVE FACILITY PROGRAM

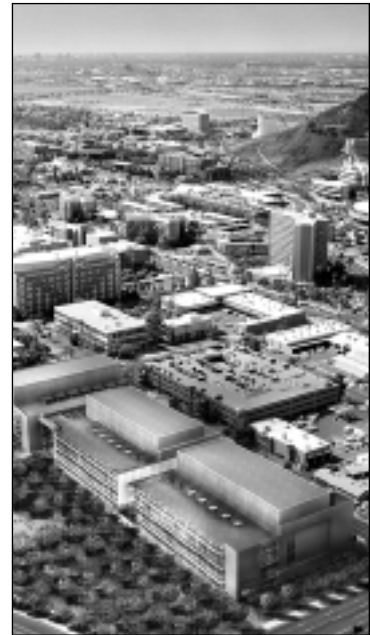
ASU is aggressively expanding its capabilities in the area of biomedical and bioengineering research. (See earlier section of this briefing book entitled ASU Research Infrastructure Update".) We are in the process of building multiple facilities for the Arizona Biodesign Institute which will be the cornerstone for our research in this vital and burgeoning field. Programs such as the NIH's competitive extramural facilities program are important sources of potential matching resources to the significant investment made by the state.

Competitive facility dollars at the federal level are critical for the complex to come to fruition. Facility programs such as the NIH program found at the National Center for Research Resources (NCRR) are important sources for potential matching dollars to ASU's investment. This specific NIH program is authorized under Sections 481A and 481B of the Public Health Services Act, as amended by Sections 303 and 304 of Public Law (PL) 106-505, to make grants or contracts to public and nonprofit private entities to expand, remodel, renovate, or alter existing research or animal facilities or construct new research or animal facilities. The facilities will be used for basic and clinical biomedical and behavioral research and research training.

In the FY05 Omnibus Appropriations Bill a total of \$30 million was appropriated for the NCRR Extramural Facilities Program.

FY06 REQUEST

The President's budget recommended \$0 million for the NCRR's extramural facilities construction grants. ASU supports continued funding for NIH extramural competitive facilities program at the level of at least \$125 million.



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REMOVING RESTRICTIONS FROM PROPERTY CONVEYED TO ASU

Williams Air Force Base was listed for closure by the 1991 Base Realignment and Closure (BRAC) process and was actually closed on September 30, 1993. To date, ASU has received approximately 604 acres of property at Williams through four (4) separate parcels conveyed by quitclaim deeds. A final conveyance of approximately 5 acres is expected following completion of environmental remediation.

The deeds contain a number of covenants, conditions subsequent, and restrictions that may impact our ability to use the property for economic development or significant revenue generating activities – without seeking and obtaining prior approval of the U.S. Department of Education. For example, two of the deed provisions state:

“For a period of thirty (30) years from the date of this Deed, the Property will be used solely and continuously for educational purposes in accordance with the proposed program and plan of GRANTEE set forth in its Application and for no other purposes. GRANTOR reserves the right to enter and inspect the Property during said period.” “During the above period of thirty (30) years GRANTEE will not sell, resell, lease, rent, mortgage, encumber, or otherwise transfer any interest in any part of the property except as GRANTOR may authorize in advance in writing.”

While ASU received federal approval for two major capital financings that involved long-term ground leases, even with excellent cooperation by the Department of Education, the approval process took an exceedingly long time and impacted the closing timetable and the project schedule. Also, there was always the possibility that the Department of Education could have disapproved these projects, and there are no assurances that approval of entrepreneurial, revenue producing use of the property will be approved in the future.

Removing these onerous restrictions from the deeds should enable ASU to move forward with accelerated development of the ASU East campus in a way that contributes to meeting the needs of the Arizona and the creation of a New American University.

In today’s competitive environment, the window for attracting investment in leading edge research or new areas of academic interest may be very short—and the university must be able to move quickly to be successful.

With the declining public support for higher education, colleges and universities nationwide have had to become more entrepreneurial in order to sustain their educational missions. ASU East campus is no exception. This means that we have to be able to make optimal use of all of our resources at the speed of enterprise, not of government, at the speed of business, not agencies.



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ASU is aggressively pursuing public-private partnerships and creating new entities that generate significant revenues for research.

ASU must be positioned to respond to new research and investment opportunities without burdensome and lengthy federal approval processes, or worse yet, the possibility of a federal restriction impacting the university's ability to move to the next level of excellence

FY06 REQUEST:

In the last Congressional session, HR 4439 was introduced by Congressman Jeff Flake and all AZ House Members were co-sponsors. We anticipate legislation to be reintroduced this cycle and hope our Members will again co-sponsor.

This action does not require appropriated dollars; however, if abrogation of deed provisions were requested by the university and approved by the Department of Education, a payment to the federal government would be required.

However at the end of thirty years the property deed restrictions terminate and ASU can do what it chooses with the land and would not need to pay the federal government anything. We believe conditions at ASU have dramatically changed over the last several years and we are looking at a need to greatly expand ASU East to be able to accommodate 20,000 students in the near future. We feel that we here in Arizona, at the "local level", know how best to advance this institution in order to meet the wave of students approaching us in the neat future.



DECISION THEATER

OBJECTIVE

To secure competitive grants and contracts from federal agencies to fund projects and to support the research mission of Arizona State University's Decision Theater. ASU is targeting 3 – 4 projects (\$100,000 - \$250,000 each) for FY 06, which is the first year of operation. The targeted federal agencies include Department of Homeland Security, Department of Energy, U.S. Geological Survey, Environmental Protection Agency, and the National Oceanic Atmospheric Administration. Broader-based research support is being sought from the National Science Foundation and the Defense Advanced Research Projects Administration.

BACKGROUND

ASU is creating the ASU Decision Theater, a learning and decision space in which the latest understanding of complex social, economic and natural processes and their interactions is visualized. It will provide science-based analysis, models, and visualizations to help our communities explore options, simulate predicted outcomes, and generate interactions that will result in informed decisions and a better future.

The ASU Decision Theater will be an immersive experience using a 270-degree rear projection screen with seating for up to 20 people. The environment will permit viewing of the 3D models and simulations that represent the research of the disciplines and the computer scientists who collaborate with businesses, communities, and public policymakers. The information flow will include presentation of data and interactive control using unobtrusive motion trackers, wireless controllers, and other feedback mechanisms. This interactive visualization is essential to scenario planning and to data-grounded modeling and visualization of potential outcomes. Ingesting data into models and coupling analytic tools and outputs to create scientifically based scenarios of human-natural systems is one of the foremost challenges for the ASU Decision Theater.

BUDGET

Start-up funding for the ASU Decision Theater was provided by a \$3 million gift from Ira Fulton, a local entrepreneur and home builder. The University matched the gift with \$2 million in additional funding. The operational budget for FY 2006 is \$1.5 million, which will be funded through additional private donations, sponsored projects, and grants.

REQUEST

The ASU Decision Theater has relied upon private funding and matching University funds for initial construction and start up. The first set of funded projects has been sponsored by local and State agencies. ASU will actively attempt to secure Federal funding from multiple funding streams in FY06, including projects sponsored by DHS, DOE, EPA, USGS, NOAA, NSF, and DARPA.



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CONSORTIUM FOR SCIENCE, POLICY & OUTCOMES AT ARIZONA STATE UNIVERSITY (CSPO)

The Consortium for Science, Policy, and Outcomes is an intellectual network aimed at enhancing the contribution of science and technology to society's pursuit of equality, justice, freedom, and overall quality of life. The Consortium creates knowledge and methods, cultivates public discourse, and fosters policies to help decision makers and institutions grapple with the immense power and importance of science and technology as society charts a course for the future.

“Man’s power to achieve good or to inflict evil surpasses the brightest hopes and the sharpest fears of all ages. We can turn rivers in their courses, level mountains to the plains. Oceans and land and sky are avenues for our colossal commerce. Disease diminishes and life lengthens. Yet the promise of this life is imperiled by the very genius that has made it possible. Nations amass wealth. Labor sweats to create, and turns out devices to level not only mountains but also cities. Science seems ready to confer upon us, as its final gift, the power to erase human life from this planet.”

– President Dwight D. Eisenhower (First inaugural address, 1953)

Science and technology (S&T) have become the most powerful transforming forces in society, allowing people to escape fundamental need; fostering innovation and economic growth; fighting scourges like smallpox, polio, and AIDS; and joining billions of people together in information and communication networks that serve democracy as well as commerce. But the profound changes brought about by S&T have also led to negative impacts—often unanticipated. From the industrial revolution to the information revolution, the march of scientific and technological progress has left in its wake unemployment, cultural dislocation, economic inequity, environmental destruction, even war and disease.

Just as science and technology affect our world, they are affected by public policy decisions about how research funds are allocated, priorities established, the research enterprise organized, knowledge communicated and applied, and accountability maintained. Policy decisions influence the societal consequences—the outcomes—of scientific research in realms as diverse as the economy, the environment, health, governance, national security, and social structure.

While it is clear that S&T contribute to large scale societal transformations, our current understanding of how they do so is inadequate, and this leaves us unprepared for the task of planning for the future. Today, decision makers lack the tools necessary to plan for, respond to, and integrate into public policy the dynamo of S&T progress that continually reshapes our world.

Our incomplete understanding of the impacts and effects of S&T leads to such paradoxical outcomes as AIDS drugs that work in post-industrial cultures but are thus far largely irrelevant to the developing world due to



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challenges of cost and distribution, and genetically modified crops that have the potential to boost nutrition and agricultural productivity but are fiercely opposed on cultural and environmental grounds.

Our lack of understanding also results in disparities between science goals and achievements. In the U.S. and abroad, much publicly funded science is explicitly promoted and justified in terms of the quest for specified societal outcomes, such as those listed in the table below. The enormous challenge of using science to contribute to such desired outcomes rests upon the ability to implement appropriate science policies.

Desired Societal Outcomes Promoted by National Science Agencies:

- Increase quality and years of healthy life. Eliminate health disparities. (US Health and Human Services Department)
- Ensure a safe and affordable food supply. (US Agriculture Department)
- Foster a reliable energy system that is environmentally and economically sustainable. (US Energy Department)
- Reduce the impacts of hazards caused by natural processes and human actions. (US Interior Department)
- Conserve and manage wisely the Nation's coastal and marine resources to ensure sustainable economic opportunities. (National Oceanic and Atmospheric Administration)
- Improve the health of the European population. (European Union BIOMED 2 Program)

While the existing science enterprise includes highly effective mechanisms for judging the quality of science itself, there are few mechanisms aimed at understanding and assessing the linkages between scientific activities and desired outcomes. Such assessment processes are necessary to ensure progress toward goals. Growing demand for accountability can be recognized in Congressional action (e.g., the Government Performance and Results Act) and in public advocacy and activism (e.g., controversies over stem cell technologies, genetically modified organisms, and environmental regulations).

CSPO is the only intellectual consortium dedicated to understanding the linkages between S&T and its effects on society, and to developing knowledge and tools that can more effectively connect progress in

S&T to progress toward desired societal outcomes. The Consortium draws on the intellectual resources of Arizona State University and other institutions for the scholarly foundation to assess and foster outcome-based policies across a broad portfolio of publicly funded scientific research. The Consortium's core commitment is to generating useable knowledge for real-world decision making.

Governance
Globalizing Society
Social Change
Environment
Human Health

FY06 REQUEST

ASU is presently engaged (as of 2/05) in competing for NSF funds per the 21st Century Nano Research and Development Act and is looking to highlight the need for societal and ethical consideration in additional legislation.

In the 21st Century Nanotechnology Research and Development Act, Congress mandated “establishing a research program to identify ethical, legal, environmental, and other appropriate societal concerns related to nanotechnology” and “insofar as possible, integrating [such] research ...concerns with nanotechnology research and development.” Congress further authorized the National Nanotechnology Coordination Office to integrate “public input and outreach...into the Program...through mechanisms such as citizens’ panels, consensus conferences, and educational events.” The deliberations of elected officials and the insights of social science have converged on the understanding that scientific research, consideration of societal implications, and public engagement should be addressed together in the knowledge production process. CSPO-ASU responds to this convergence, building a new institutional capability for understanding and governing the societally transforming power of science and technology.

It is logical that the type of analysis CSPO can do in the area of nanotechnology as spelled out in the above referenced Act, can be and should be done in many additional areas as well. Science needs to be intentional in assessing the societal and ethical implications of its research across many issue areas.

THE NORTH AMERICAN CENTER FOR TRANSBORDER STUDIES

BACKGROUND

The development of the U.S.-Mexico and U.S.-Canada border regions has yielded numerous economic benefits while creating a unique set of challenges and opportunities which affect the social and economic growth of all three nations. Disparities in government policies have often created regulations and programs that have resulted in uneven economic growth and development in these highly interactive and interdependent areas. The need for more common policies, developed and directed to solve the common issues and to promote and facilitate further integration of the region, is clearly evident. One such example is the transaction costs of moving across the borders, both between the U.S. and Mexico and the U.S. and Canada. These costs are too high, obstructing business, social, and academic opportunities across North America. By following the example of Europe and Asia and streamlining the process through partnerships, these transaction costs may be lowered, thus improving the efficiency of business and other relationships across the continent.

Systems are needed to coordinate government policies and programs by local, state, and federal policy makers. This requires that objective information on border issues be readily available policy makers on the impacts of policy changes. Such proposals would assist policy makers in providing a roadmap for policy development and would be instrumental in further facilitating the social and economic integration of the U.S.-Mexico and U.S.-Canada border regions. It would also create improved business and public understanding of the problems of the region and their potential solutions.

OPPORTUNITY

Although the number of cross-border research and public policy driven initiatives surged after the signing of the North America Free Trade Agreement, many centers addressing these concerns analyze only the U.S.-Mexico or the U.S.-Canada border. A trilateral research alliance for policy-oriented border studies is a yet-unfilled niche.

The creation of the North American Center for Transborder Studies will assist policy makers in developing and integrating markets and policies within the border region, with the goal of addressing many of the economic and social challenges and opportunities of the region. Specific beneficiaries include:

Policy makers at the local, state and federal levels will have updates on conditions for the region, including an identification of issue areas. They will be able to focus their attention on a specific set of issues and policy options with an objective 3rd party evaluation of their consequences relative to the status quo policies. They will be in a better position to make



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decisions that are in the interest of their constituency and the general public.

Industry and business leaders will have access to the same economic information and will be in an improved position to plan for the future. The development of a consistent regional policy will provide a better basis for investment decisions, thus fostering growth and development throughout the region. The general public will realize improved economic and social conditions. Greater opportunity will exist for realizing and sharing in the growth and the wealth of the region. These benefits will not just be limited to those who live in the border region, but will extend beyond the broader population of both the United States and Mexico.

Researchers at the universities will be able to improve their research through the partnership and the resources of the center.

MISSION

This center will create a network of experts that will provide actionable information to policy makers related to issues on the border between Mexico, United States and Canada. Policy options include those considered by policy makers at the local, state, and federal levels. Researchers will pursue multidisciplinary and holistic research spanning from migration studies to environmental concerns and beyond with the intent of informing public policy makers in each country, for the improvement of life in North America.

GOALS AND OBJECTIVES

The specific goals and objective of the project are as follows:

To provide regular projections on conditions within the border region and in the process to identify major problem areas of which policy makers need to be aware.

To provide timely, objective, and useful input to policy makers on the consequences of specified policy options.

To provide an objective, trilateral perspective on particular policy proposals.

To enhance the quality of teaching and student understanding regarding border issues and the policy options for dealing with them.

To enhance research opportunities and the results of this research within the public policy sphere.

PARTNERS

The partnership between universities and research institutions will allow resources to be pooled and research to be improved. The business community will be a valuable participant in the research and the results from the center, and will both benefit from and contribute to the findings the center reaches. Policy makers will receive information and participate in the center, and will be able to use this information to help them in their decisions regarding border issues.

FY06 REQUEST

Advance the need for the North American Center for Transborder Studies by securing support from key officials from the U.S., Mexico and Canada.

HIGHER EDUCATION ACT REAUTHORIZATION HISPANIC SERVING INSTITUTIONS

ASU has over 6,650 Hispanic students but is not designated as a Hispanic-Serving Institution since the designation presently based primarily on percentages of students attending an institution. Given our large overall student enrollment, ASU's students are being disadvantaged given there are far greater numbers of Hispanic students at ASU as compared to many institutions that have acquired the Hispanic Serving Institution designation. The legislative authority setting forth the criteria for the designation comes from the Higher Education Act which is up for reauthorization this year.

Definition of a Hispanic-Serving Institution:

Presently a Hispanic-Serving Institution (HSI) is an institution that has at least 25% Hispanic full-time equivalent (FTE) enrollment, and of the Hispanic student enrollment at least 50% are low income. Low income is defined as 150% of the poverty level as determined by the Bureau of the Census.

The Department of Education has compiled a list from IPEDS data of institutions that may qualify as Hispanic-Serving Institutions. This HSI list includes non-profit, public and private, four-year and two-year institutions of higher education. Even though ASU has a large Hispanic student population we do not qualify for consideration since we are not at the 25% threshold. We feel there should be discussion as to whether or not this arbitrary threshold is in the best interest of students attending institutions that have large numbers of Hispanic students.

For example, in Arizona there are 9 institutions named in the above referenced "list" that may be designated as Hispanic Serving Institutions. ASU has nearly as many Hispanic students as these 9 institutions combined. (An institutions is identified as an HSI by US Department of Education after they have met qualifications and have been awarded a competitive grant – which is why numbers seem to vary)

As of the Fall of 2004:

Over the past 10 years, Hispanic enrollment at Arizona State University has risen 75 percent, to 6,816 Hispanic students -- this amounts to 11.6 % of our student population.

FY06 REQUEST:

There needs to be a serious dialogue regarding the formula used for identifying Hispanic-serving institutions in the Higher Education Authorization Act. The parameters for the designation need to include factors such as numbers of Hispanic students and/or taking into account rapid growth of Hispanic students at an institution. The President's budget request for FY06 recommends \$96 million for HSIs.



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ASU'S CENTER FOR VIOLENCE PREVENTION AND COMMUNITY SAFETY

The Center for Violence Prevention and Community Safety has the mission of improving the quality of life in Arizona communities through research that informs the development of model violence-prevention strategies, giving government agencies and community organizations the capacity to increase community safety. The Center draws on a broad base of research perspectives and resources available at Arizona State University to address the problem of violence and community safety.

The Center for Violence Prevention and Community Safety at Arizona State University was established to concentrate multidisciplinary research, education, and service on resolving a universal problem detrimental to Arizona communities – the problem of interpersonal violence.

As a research and development organization, the Center's mission is to generate, share, and apply quality research and knowledge to create “best practices” models to achieve the goal of reducing interpersonal violence.

ASU's commitment to the principle of social embeddedness and the application of research to solving real community problems guides the Center to work closely with community organizations and agencies.

The Center's researchers engages in interdisciplinary research and evaluations in cooperation with community partners, and supports such work with appropriate services including training, publication, and ready access to retrievable resources.

In its work with violence-prevention and community-safety organizations, a principal objective of the Center is strengthen them, and to support their growing effectiveness. The Center works with regional and local organizations to help them refine organizational blueprints and developmental processes for clarifying, articulating, and achieving their own violence-prevention and community-safety goals.

The Center's knowledge products inform organizations and communities as they act to prevent violence. The Center engages with local, state, and national agencies and government departments to advance the agenda of violence prevention; its knowledge products enable policymakers and decision makers to conceive and implement policies, programs, and practices grounded in evidence.

As it evolves the Center for Violence Prevention and Community Safety aspires to become a leading source of knowledge and information on violence and its prevention in the United States. The Center works to improve community safety mechanisms with research that informs the development of new violence-prevention and community-safety models.



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The Center's objectives for reaching that goal are:

- To make policymakers, practitioners, and community leaders aware of effective strategies for preventing violence and improving community safety;
- To supply policymakers and practitioners with data and analyses that support sound decision-making in the development and implementation of violence-prevention and community-safety policies and practices;
- To partner with public criminal justice agencies and related nonprofit organizations in building organizational capacity for preventing violence and improving community safety;
- To train researchers, faculty, students, government agencies, and nonprofit organizations in the development of analytical models for use in planning and program development;
- To engage students in violence-prevention and community-safety research and development;
- To achieve national recognition as a leader in violence prevention and community safety research; and
- To support the State of Arizona in becoming a center for innovative violence-prevention and community-safety programming and practices.

HIGHER EDUCATION ACT REAUTHORIZATION ISSUES

ISSUE: PELL GRANT AWARDS

Recommendation:

- (a) Create a true Pell Grant entitlement. Tie the maximum annual award to the average living expenses incurred by students at four-year public colleges and universities nationwide (currently approximately \$5,600 at four-year public universities, based on the most recent Trends in Colleges Pricing).
- (b) Clarify through statute that Congress has the authority to set the maximum Pell grant award annually and that the Secretary of Education does not have the authority to decrease the maximum.

Rationale: The Pell grant program is the cornerstone for all aid programs at Arizona State University, with 11,956 students receiving Pell funds in the 2003-2004 academic year for about \$30.5 million. With the rising cost of education and economic downturn, the most needy students are finding it more difficult, if not impossible, to afford to attend college. The FY06 Presidents budget request includes a \$500 increase in the Pell grant over the next five years which is positive news. On the negative side is a change the administration made in the qualification formula which is used to determine how much a family can contribute to college costs. Those changes, which updated the amount a family can deduct for state and local taxes when calculating their expected contribution, will leave many current recipients ineligible.

ISSUE: TRIO PROGRAM

The President's FY06 budget request would reduce funding for the TRIO program by 55.9% dropping the funding from \$836 million to \$369 million. We urge funding be restored.

In FY04, ASU had 4 of the TRiO programs:

- Upward Bound: 112 students.
- Veteran's Upward Bound: 120 students.
- Educational Opportunity Center: 3500 students.
- Student Support Services for Disabled Student: 480 students

TRiO programs provided over \$2 million dollars in 2004.

History - Congress established a series of programs to help low-income Americans enter college, graduate and move on to participate more fully in America's economic and social life. These Programs are funded under



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Title IV of the Higher Education Act of 1965 and are referred to as the TRiO Programs. TRiO programs help students overcome class, social and cultural barriers to higher education. A TRiO program has been on campus at Arizona State University consistently since 1965. From 1995 to 2004 these TRiO programs have brought more than \$11 million in federal grant dollars to the university.

Who is served -

As mandated by Congress, two-thirds of the students served must come from families with incomes under \$24,000, where neither parent graduated from college. In most cases, parents have no higher education experience, do not understand the postsecondary process and do not necessarily value a higher education. Arizona State University's TRiO programs have served over 25,000 eligible participants from 1999 to 2004 and helped them realize a university education.

Program Descriptions -

Upward Bound helps young students to prepare for higher education. Participants receive instruction in literature, composition, mathematics and science after school, on Saturdays and during a summer residential program.

Veterans Upward Bound provides intensive basic skills development and short-term remedial courses for military veterans to help them successfully transition to postsecondary education. Veterans learn how to secure support from available resources such as the Veterans Administration, veterans associations, and various state and local agencies that serve veterans.

Student Support Services helps low-income students to stay in college until they earn their baccalaureate degrees. Participants, who include disabled college students, receive tutoring, counseling and remedial instruction. Arizona State University has two such programs. There is one program at the Tempe Campus and one at the West Campus.

Educational Opportunity Center primarily serves displaced or underemployed workers from families

with incomes under \$24,000. This center helps people to choose a college and a suitable financial aid program. Arizona State University's Center also assists low-income, first-generation high school students throughout the Phoenix area.

ISSUE: HISPANIC SERVING INSTITUTION

(see individual write-up 8.5 in this agenda book for this initiative)

ISSUE: LOAN DISBURSEMENT REQUIREMENTS [SECTION 428G(A)(3), (B)(1)]

Recommendation: Eliminate the 30-day delay for first-time students and multiple disbursements for single term loans.

Rationale: Implementation of this recommendation would help ensure that students receive loan funds when the costs are incurred which inevitably assists with enrollment and retention efforts. Waiver of these requirements has also proven to positively impact our cohort default rate.

Although we fully support The Department's emphasis on default reduction, these requirements have not been productive for schools in meeting this objective. Instead, they have contributed to compounding efficiency problems. In the years we were not subject to these provisions, we did not experience a rise in our cohort default rate - on the contrary, our cohort default rate decreased.

As a result of 30-day delay and multiple disbursement requirements for Spring 2003, 1,287 ASU students experienced a delay. We estimate that over 160 man-hours were necessary to identify and notify the students affected, implement a means for our system to accommodate these provisions, and track the outcome of implementation to ensure that the disbursements are issued correctly. The amount of time it took to adhere to these requirements provided no measurable positive outcome. For the Fall 2003 semester, we estimate that a minimum of 3,000 students will be impacted.

ISSUE: INCREASED LOAN LIMITS [428(B)(1)(A)]

Recommendations: Increased Loan Limits and elimination of up-front fees

(a) Increase annual and aggregate loan limits for both subsidized and unsubsidized loans, effective in 2004.

RECOMMENDED ANNUAL LIMITS FOR STAFFORD LOANS

	Subsidized Loans	Total (subsidized & unsubsidized loans)
Dependent Undergraduates	\$7,000	\$7,000
Undergraduates without access to PLUS	\$7,000	\$14,000
Graduate & Professional Students	\$10,000	\$25,000

RECOMMENDED AGGREGATE LIMITS FOR STAFFORD LOANS

	Subsidized Loans	Total (subsidized & unsubsidized loans)
Dependent Undergraduates	\$35,000	Same
Undergraduates without access to PLUS	\$35,000	\$70,000
Graduate & Professional Students	\$85,000	\$195,000

- (b) There would be only one annual loan limit for undergraduate borrowers rather than the current first-year, second-year, and third- and fourth-year limits.
- (c) Schools would have the authority to implement lower loan limits for undergraduate and graduate students. A statutory provision would be placed into the law prohibiting any executive agency or judicial review of a school's decision to have lower limits than the federal maximums.
- (d) Elimination of all up-front fees for borrowers associated with student loans.

Rationale: The last time loan limits were increased for first year students was 1986 and for all other students, 1992. The absence of increased loan limits since then has resulted in ASU students increasingly seeking alternative loan sources to meet their increased costs of education. Alternative loans represent a more expensive, less beneficial borrowing option for students.

Additionally, level annual loan limits for all undergraduate students would represent a simpler loan structure for students to comprehend while decreasing the administrative burden schools face in managing several different loan limits. For example, level loan limits would eliminate the current need to process additional loan amounts for those students who advance a grade level at the mid-year point, a fairly common occurrence at a school the size of ASU.

Also, the elimination of loan fees would create more beneficial terms for borrowers.

ISSUE: RETURN OF TITLE IV FUNDS- UNOFFICIAL WITHDRAWAL DEADLINE FOR DETERMINATION OF DATE OF WITHDRAWAL [SECTION 668.22]

Recommendation: Increase the time allowed for determination of the withdrawal date for students who fail to formally withdraw from the institution from 30 days to 60 days.

Rationale: Although we understand The Department's position in regards to students earning a portion of their funds based on the number of days in attendance, and agree that students who fail to officially withdraw

should not receive greater benefit than those that officially withdraw, current regulations do not provide enough time to accomplish this objective.

Currently, institutions have 30 days to 1) determine the population of students affected by this regulation and 2) determine a withdrawal date. ASU takes 2 weeks from the end of the term to post grades. Since unofficial withdrawal processing is dependent upon identifying students who have not successfully completed any course for the term, it is necessary to wait for grades to post before beginning the Return of Title IV withdrawal process for unofficial withdrawals. Waiting for grades to post consumes half of the time allowed under current guidance.

However, a failing grade does not necessarily correlate to a student not having “successfully completed the course.” (Current regulations indicate that a student that earned an 'F' grade and maintained enrollment is eligible for 100% of the aid received and should not be subject to Return of Title IV requirements.) As a result, after grades are received, we must secure proof of attendance from all means available. If students indicate completion of a course, we are forced to contact professors in an attempt to document last date of attendance. At an institution as large as ASU, where taking attendance is not required, the response rate is poor and the administrative burden enormous. At best, it is difficult to make a determination of the date of withdrawal for these students and can take significantly more time than current regulations allow.