

The College of Architecture Signature Programs

April 14, 2003

INTRODUCTION:

The Texas A&M College of Architecture is the largest of the approximately 100 architecture colleges in the U.S. and one of only twenty that offer degrees in all of the “built environment professions.” Our three departments, Architecture, Construction Science, and Landscape Architecture + Planning, represent all the professions that compose the leadership in the planning/design/construction industry sector which is second only to healthcare as a percentage of the gross national product of the U.S.

In addition to reputation for size, we are also consistently ranked as one of the best colleges of architecture in public universities in America. *Design Intelligence* produces the only annual ranking of architecture colleges by surveying practitioners from throughout the nation, asking them to name the university that has produced their best employees over the past five years. The top fifteen private and public colleges of architecture are included in the ranking. Texas A&M is one of seven universities overall and one of three publics that have been ranked each year for the past three years. Our overall rankings have been 14th in '03, 10th in '02, and 15th in '01. Considering public universities only, Texas A&M ranked 7th nationally in '03, and 4th in both '02 and '01. Since our College graduates architects, landscape architects, planners, constructors, and “vizzers” these rankings are indicators of both college and departmental strength. We are also mature; the College of Architecture will celebrate its 100th anniversary in 2005, making our programs the oldest in Texas and some of the most established in the nation.

The structure of the College of Architecture gives us unique leverage for excellence: our twelve degree programs are based in departments, but our several research centers and laboratories are interdisciplinary. This structure allows faculty members to excel in their disciplinary specialization, as required by the several accrediting agencies that review our degree programs, while providing interdisciplinary teams for research. Through this structure, our research focus on Design for Health, for example, assembles faculty in architecture, landscape architecture, planning, and construction science into interdisciplinary research teams. This interdisciplinary research approach aligns with the latest “teaming” trends in the professions, and it has earned faculty in the College international reputations in our *SIGNATURE RESEARCH PROGRAMS* of Design for Health, Visual Studies, Hazard and Emergency Preparedness, and Sustainable Environments.

Our unique research/academic structure has attracted one of the most outstanding faculties in a college of architecture in the nation. More of our faculty members hold the Ph.D. than those of any other college of architecture in the nation...both by headcount and percentage. Our two Ph.D. programs are among the largest in the nation. Our former students are leaders in all disciplines of the built environment professions, and those in higher education are in prestigious academic positions throughout the world.

These *RESEARCH PROGRAMS* are paired with our *SIGNATURE ACADEMIC PROGRAMS*, the Department of Architecture, the Department of Construction Science, and the Department of Landscape Architecture + Urban Planning. We look forward to your review of all of our College of Architecture Signature Programs, and to the opportunity to present them visually and verbally in the near future.

Design for Health

Level 1 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

“Although the premise that physical environments affects well-being reflects common sense, evidence-based design is poised to emulate evidence-based medicine as a central tenet for healthcare in the 21st century” (*The Lancet*, August 5, 2000. 356: 518). Due to leadership from the College of Architecture, the health facilities industry is poised to adopt a reliance on scientific method for decisions about the design and construction of health facilities. Investment of additional funds to provide **six new faculty members** will have an immense and far-reaching impact upon health care and design in the United States and throughout the world.

Research and teaching in health facilities design and healthy environments is focused in the Center for Health Systems and Design (CHSD), an interdisciplinary center formed in 1983. The CHSD brings together faculty from the three departments in the College of Architecture and the TAMUS Health Sciences Center. The director coordinates teaching and research by several faculty members. The CHSD integrates its research into the teaching mission of the College through the graduate Certificate in Health Systems and Design.

SIGNIFICANCE

The forecast is for annual spending on hospitals to rise from \$15 billion today to \$25 billion in the year 2010, the result of factors such as the aging population. Homeland security issues imply that the nature of new construction and remodeling of existing facilities must change to meet newly identified threats. Underserved parts of the nation, such as the colonias along the border of Texas and Mexico, present new problems in provision of health facilities.

These three areas represent a very significant need for research that the College of Architecture will meet through expanded programs. Tens of millions of research dollars will be devoted to this field through the National Institute of Health, the Department of Homeland Security, the National Science Foundation, and private agencies.

RATIONALE

The identification of Design for Health as a signature of the College of Architecture is based on a rapidly accelerating trend of national and global attention to the efforts of our faculty in this area. Faculty in the CHSD/College of Architecture have produced research and evidence-based design that stand alone internationally in terms of citation frequency in leading medical, scientific, and professional journals (e.g., *JAMA*, *The Lancet*, *New England Journal of Medicine*, *Science*). During the last three years alone, faculty and graduate students in the design for health area have given more than 120 refereed presentations for national and international conferences, including at least 45 keynote, named, and plenary presentations. These include a plenary lecture at the British Royal Society, a presentation on evidence-based design research for the Institute for Medicine/National Academy of Sciences, and a TAMU Faculty Distinguished Lecture.

Since 1966, College of Architecture faculty have organized and directed over 500 class and other teaching projects related to health design, producing substantial outreach benefits for Texas, the nation, and many other countries. Examples include: Children's Wellness Clinic, Cooper, TX; Facility for Abandoned and Abused Children, Austin; M.D. Anderson Cancer Center; Project ORBIS, A Flying Eye Hospital for Project HOPE; 12 Ronald McDonald Houses; Rehabilitation Center for Landmine Victims in Nicaragua; Nursing Home in Port Lavacca, TX; Children's Medical Center of Dallas; Restorative Garden for Psychogeriatric Patients, Austin State Hospital; and an Aging in Place Community in Dalian, China.

In 1998, the College of Architecture established an interdisciplinary Certificate in Health Systems and Design for graduate students. Upwards of sixty students have been awarded the Certificate, and they have been highly recruited by industry. Currently at least 35 students, including six Ph.D. students, are specializing in health design and research. Demand for the Certificate is increasing, as is the quality of applicants.

In 2000, College of Architecture health faculty co-organized and sponsored an international conference on evidence-based design in Stockholm with the Karolinska Institute of Medicine, home institution for the Nobel Prize in Medicine. Currently, in response to an invitation from Dutch healthcare and university officials -- including the Dutch National Health Council -- these TAMU College of Architecture faculty are planning the program for an interdisciplinary international congress on evidence-based healthcare design/research to be held in 2004 in the Netherlands.

Research, teaching, and outreach activities by College of Architecture health design and research faculty have generated a vast amount of positive media publicity for Texas A&M University. Such coverage has included scores of articles in local or regional media such as the *Battalion*, *Eagle*, and *Houston Chronicle*, and hundreds of instances of prominent coverage in highly influential international media (e.g., *New York Times*, *Washington Post*, *London Daily Telegraph*, *Newsweek*, *U.S. News & World Report*, *Smithsonian Magazine*, CNN International, ABC World News Tonight, NPR, Discovery Channel, BBC Television).

INTERDISCIPLINARY IMPACT

Design for health is a theme in all three departments of the College of Architecture and a focus for interdisciplinary collaboration with the Health Sciences Center. Building upon the joint appointments of Dr. James Varni and Dr. Rogers Ulrich, the investment in this signature

program will further strengthen collaborative efforts across the departments of the College of Architecture and with the College of Medicine.

ASSESSMENT/EXPECTATIONS

The requested investment will enable Texas A&M University to be positioned as the unchallenged leader in health facilities design. This status will be confirmed in the following ways:

- Literature review and documentation of citations in medical journals in comparison to citations by other faculty of colleges of architecture.
- Sponsored research funding by the National Institute of Health, the National Science Foundation, and other government agencies and non-government agencies. We anticipate increases in funding that will double each year of a four-year time frame, reaching \$4 million annually.
- Popular press recognition that includes mention of Texas A&M University in leading publications, such as the New York Times, Newsweek, London Times, and broadcast television.
- Leadership of faculty members that is acknowledged through invited speaking engagements at national health institutes throughout the world.

REQUEST

This signature program can achieve optimal effectiveness through investment in six new faculty positions. One new faculty appointment in the Department of Architecture should be recruited at a tenured or senior level to serve as fulltime Center/Institute Director or Coordinator. A full-time administrative staff position should be provided to execute the administrative activities of the Center or Institute. One or two of new faculty appointments must have

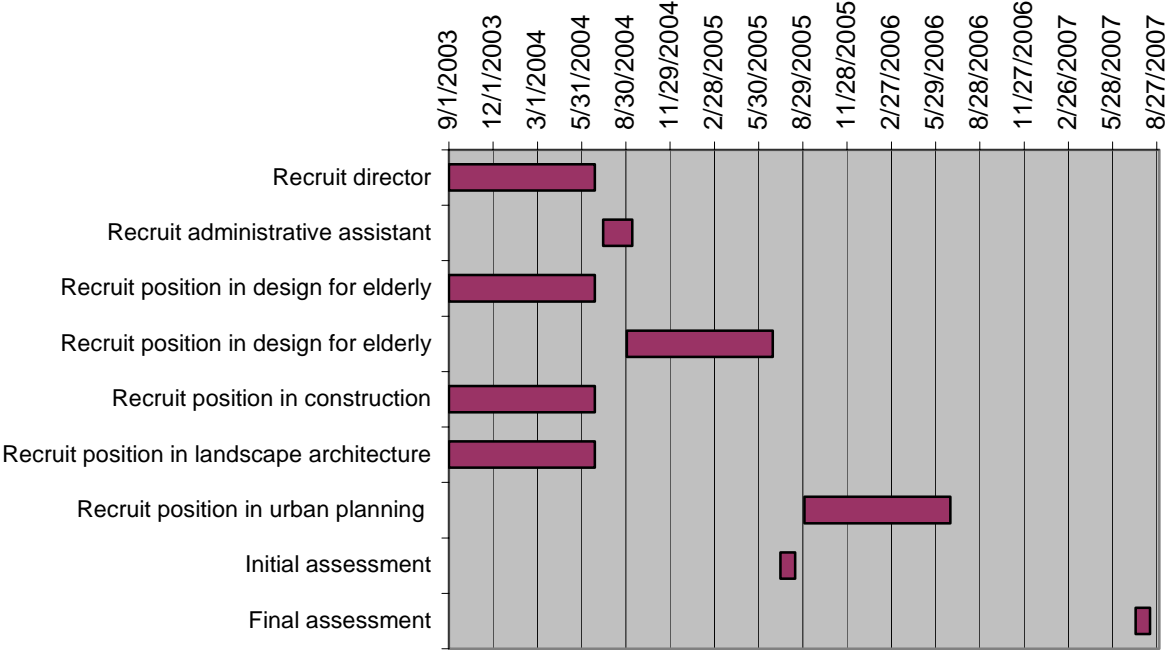
substantial expertise relating to design for elderly persons and would be in the Department of Architecture. A new faculty health position should be located in the Department of Construction Science to address construction phasing, remodeling, and special construction needs of health facilities. One additional new faculty health position will be located in Planning and Urban Design; this person should have expertise pertaining to how urban or neighborhood physical design hinders or fosters daily physical activity, and thereby strongly affects public health. A new faculty health position in Landscape Architecture will consolidate and strengthen expertise in site planning and healthy gardens.

Costs

Item	One time costs	Ongoing cost
Director position salary		\$ 125,000
Startup funds for director	\$ 60,000	
Administrative support		\$ 50,000
Design for the elderly position 1 salary		\$ 60,000
Startup funds for design for the elderly position 1	\$ 48,000	
Design for the elderly position 2 salary		\$ 60,000
Startup funds for design for the elderly position 2	\$ 48,000	
Construction position salary		\$ 60,000
Startup funds for construction position	\$ 248,000	
Urban planning position salary		\$ 60,000
Startup funds for urban planning position	\$ 48,000	
Landscape architecture position salary		\$ 60,000
Startup funds for landscape architecture position	\$ 48,000	
Total	\$ 500,000	\$ 475,000

Startup funds are primarily graduate teaching and research assistants who will conduct empirical experiments. These graduate students will also form a cadre of excellence that will be the core researchers in this field for the next generation. The construction position will be assisted by substantial computing resources to enable simulation of construction processes for hospitals and large projects. These computing resources will also be available for mocking-up designs so that they can be tested in a virtual environment.

Timeline



Because of the expertise that is already in place in the College of Architecture, recruiting of faculty members can begin immediately.

Hazard and Emergency Preparedness

Level 1 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

Planning for emergencies and disaster recovery is a well-established area of international excellence in the college. The Hazard Reduction and Recovery Center (HRRC) provides expertise in planning to recover from natural and man-made disasters. The HRRC is an interdepartmental center that consists of a director, research scientists, administrative support personnel, and affiliated faculty members. It has an exemplary track record that attracts external funding and provides expertise to state, national, and international agencies. Its research expertise is integrated with the teaching mission of the College through the Environmental Hazard Management Certificate, which is offered to graduate students throughout the University.

The college intends to broaden and strengthen the activities of the HRRC, expanding into homeland security issues at the multiple scales of building design, city planning, and regional response planning. Existing and new faculty members will provide expertise in structural and building security, site planning for security, health facilities planning, transportation planning, urban modeling and regional planning. This Tier One, Level One program can maintain excellence and move to international prominence by the recruitment of **five new faculty members**. These new faculty will be appointed in various departments of the college.

SIGNIFICANCE

Emergency preparedness, with respect to natural disasters and industrial accidents, is recognized as very valuable by government agencies, the insurance industry, and commercial

enterprises. Safety is also widely recognized as an important area for research. Awareness of these fields has reached a new level due to the events of September 11, 2001. Recognition of the vulnerability of ports such as New York and Houston has increased to the point of congressional and legislative attention. Texas A&M University has focused a significant legislative initiative on the Integrative Center for Homeland Security, an investment that should be reinforced by funding this proposal.

Funding sources for research in this area include the Army Corps of Engineers, local and regional governments, state government, the Department of Homeland Security, the National Institute of Health, the National Science Foundation, and DARPA. Support from industry includes major architecture, planning and construction firms, such as Gensler, 3DI and RTKL.

RATIONALE

Founded in 1989, the HRRC is one of only two United Nations Office for the Coordination of Humanitarian Affairs (OCHA, http://www.reliefweb.int/ocha_ol/) Collaborative Centers in the world. The HRRC serves OCHA as a research and consultant agency with particular emphasis on national disaster plans and their implications for future development. Recent workshops have provided training in hazards mitigation to city officials of China, Brazil, and Mexico, as well as state and federal officials.

Expertise in the College of Architecture also exists in geographic information systems, transportation planning, urban modeling and visualization, historic preservation and conservation, and energy systems distribution. Investment in this signature program would catalyze and focus these other researchers into a research group that would be without peer.

While the HRRC is thriving as an international authority in evacuation planning and emergency preparedness training, it will require additional investment to retool it to address

homeland security concerns. In particular, it will require increased expertise in building security, simulation, modeling and visualization, and command and control systems.

INTERDISCIPLINARY IMPACT (OPTIONAL)

A cooperative and interdisciplinary effort into port and urban modeling for security combines resources in the College of Architecture, College of Geosciences, Health Sciences Center, Texas Cooperative Extension, Texas Center for Applied Technology, and the Integrative Center for Homeland Security. This proposal can be a core for homeland security research or it can be one of a collection of focus areas that might include expertise in fields such as atmospheric and oceanographic modeling, bio-terrorism issues, toxicology, and public health.

ASSESSMENT/EXPECTATIONS

The goal for this reinvestment request is to consolidate and expand the reputation of emergency preparedness programs in the College of Architecture through exemplary research. As such, the assessment of the program rests primarily on research production but includes educational components:

1. Expand research to explicit homeland security projects. Generate \$500,000 in annual external research funding in the first year, increasing to \$2 million in research funding by the fourth year.
2. Expand research to include projects at the building scale, the urban scale and the regional scale. Publish major reports sponsored by government agencies for designers, planners and constructors.
3. Incorporate new electives into the graduate curricula of each department of the College that address homeland security and emergency preparedness issues.

Enable 10% of graduates in each of the graduate programs of the college to have expertise in emergency preparedness, building security and urban security.

4. Initiate outreach and training programs that disseminate research results and expertise to public and corporate officials. Assist in training 200 public officials per year in homeland security issues.

REQUEST

The College requests the following new faculty members for this reinvestment proposal:

1. Group leader. High-level faculty member with expertise in urban security, evacuation planning, emergency recovery operations, or other appropriate specialization, to be hired in either the Department of Architecture or the Department of Landscape Architecture and Urban Planning.
2. Visualization position. Mid-level or high-level faculty position to be filled with an expert in visualization, simulation and virtual reality as applied to city modeling.
3. Building security position. Entry-level faculty member with expertise in building security to be hired in either the Department of Architecture or the Department of Construction Science.
4. Urban design position. Entry-level faculty member with expertise in urban design and security to be hired in either the Department of Architecture or the Department of Landscape Architecture and Urban Planning.
5. Visiting expert. High-level visiting faculty position to be filled with experts on leave from industry or government, with special knowledge of an emergency preparedness issue.

6. Administrative support. A staff position will be required to help coordinate the efforts of this research group.

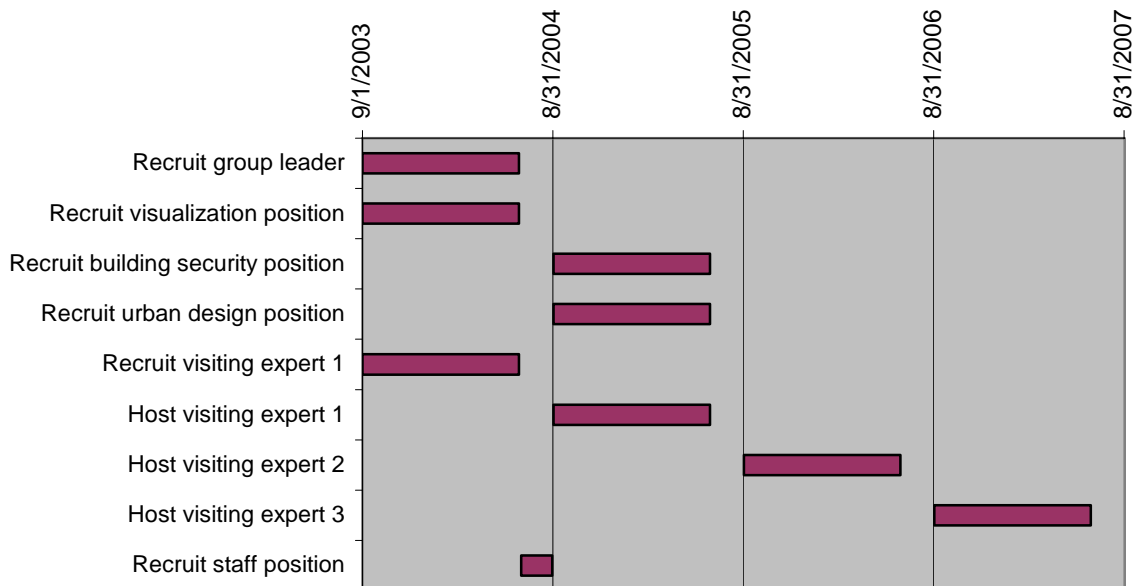
Costs

Costs are as follows:

Item	One time costs	Ongoing cost
Group leader salary		\$ 120,000
Startup funds for group leader	\$ 60,000	
Visualization position salary		\$ 100,000
Startup funds for visualization position	\$ 1,000,000	
Building security position salary		\$ 60,000
Startup funds for building security position	\$ 50,000	
Urban design position salary		\$ 60,000
Startup funds for urban design position	\$ 50,000	
Visting expert position salary		\$ 100,000
Administrative support		\$ 60,000
Total	\$ 1,160,000	\$ 500,000

Startup costs are primarily computer systems, software, and graduate assistantships to enable support of these new faculty members while they develop significant external sponsorship.

Timeline



Sustainable Environments

Level 2 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

The College of Architecture has a superlative track record in issues in sustainability of the built environment. At each of the levels of building energy systems, site planning, construction methods, urban design and planning, and regional development, the college has exceptional expertise in sustainable, “green” development.

A small investment of **four new faculty members** will position the College to achieve international prominence in a field that has growing recognition as critical for global populations. Focusing this investment around a prominent, and well-established leader will give a college-wide focus to this area and enable concerted and coordinated effort that can achieve international prominence.

SIGNIFICANCE

As federal interest in hydrogen power and energy independence increases, the ESL will increase in importance. The ESL provides services that are essential to meeting the Senate Bill 5 mandate to reduce air pollution in Houston.

RATIONALE

Already widely recognized for its expertise in energy conservation and sustainable development, the College of Architecture is in process of increasing its resources allocated to studies in sustainable environment. The Department of Architecture now has two faculty members and the Department of Construction Science has two faculty members with

internationally recognized expertise in energy systems. These faculty members work with the Energy Systems Lab, established in 1939 is a cooperative effort among TEES, the Department of Mechanical Engineering, and the College of Architecture. The ESL has ongoing programs that are targeted at reducing operating costs of federal, state, local and university agencies through energy conservation, and that have resulted in millions of dollars of external funding.

The Department of Landscape Architecture and Urban Planning has an emerging specialization in sustainable development that is receiving widespread attention and admiration. A study abroad program in sustainable land development focuses on eco-tourism in Australia and Asia. It provides students with access to global best practices. Two new faculty members, Dr. Walt Peacock and Dr. Sam Brody, joined the faculty as part of the Texas A&M University Sustainable Coastal Margins Program (SMCP). They have added expertise focused upon Texas and Gulf coast studies. Substantial expertise is already available within the Department in transportation planning and land use planning.

Many more faculty members have knowledge and interest in sustainability and conservation. All three department heads have agreed that issues in sustainable development are important to strategic plans. The college has identified sustainable development as a critical area of expertise if it is to reach its goals of top ten status as called for in Vision 2020.

INTERDISCIPLINARY IMPACT (OPTIONAL)

The initiative around sustainable environment is a collaborative effort across the three departments of the College of Architecture. It also involves and compliments expertise in the Department of Mechanical Engineering and the College of Geosciences. Further collaboration is needed with the Public Policy Research Institute and the [Bush School of Public Policy](#).

ASSESSMENT/EXPECTATIONS

Success of this investment may be measured by:

- Increased sponsored research funding. The goal for sponsored research is to increase energy research by 100% in three years and increase regional and urban planning research in sustainability to \$500,000 per year within three years.
- Increased publications by faculty in sustainable environment. We expect to double the number of publications in conferences, journals, and books within three years.
- Increased recognition of faculty expertise. Service on journal and proposal review boards is intended to double. Mention of our faculty in national popular press is intended to increase.

REQUEST

Excellence in this area can be achieved by the following investment:

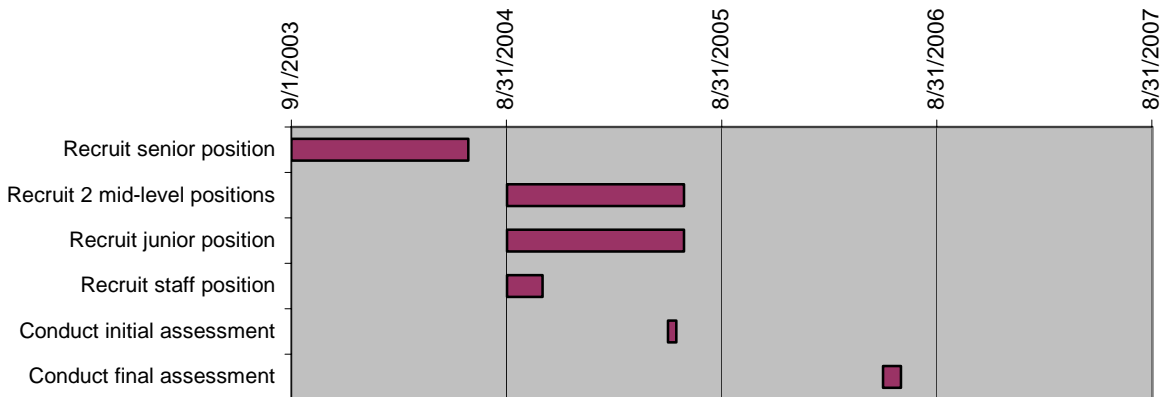
- One senior faculty member with knowledge in holistic development and design is needed to take on a leadership role to focus work across the three departments. This person will be expected to lead a Research Group in Sustainable Development and initiate a Center for Sustainable Development.
- One junior or mid-level faculty member with expertise in green construction.
- One junior or mid-level faculty member with expertise in energy conservation issues.
- One junior faculty member with expertise in any field related to sustainable environment, selected based upon expectation of becoming a leader in the field.

Startup funds for graduate assistantships will enable these new faculty members to prepare new courses and cultivate new sponsored research. An administrative support position will enable the group leader to coordinate efforts of the group, by arranging meetings, handling research administration, and assisting in sponsored project development.

Costs

Item	One time costs	Ongoing cost
Senior faculty position, salary		\$ 115,000
Startup funds for senior position	\$ 90,000	
Administrative support		\$ 50,000
Mid-level faculty position in green construction, salary		\$ 80,000
Startup funds for green construction position	\$ 60,000	
Faculty position in simulation and visualization, salary		\$ 80,000
Startup funds for simulation and visualization position	\$ 60,000	
Faculty position in sustainable environment, salary		\$ 55,000
Startup funds for position in sustainable environment	\$ 40,000	
Historic preservation position		\$ 55,000
Startup funds for historic preservation position	\$ 40,000	
Computing resources for Center	\$ 500,000	
Total	\$ 790,000	\$ 435,000

Timeline



Visual Studies

Level 1 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

The College of Architecture and Department of Architecture has operated a graduate program in visualization (the Master of Science in Visualization Sciences) since 1989. This program is world-renowned for its contributions to digital animation, computer gaming, Hollywood productions and computer graphics research. Investment in this program at this time is needed to enable expansion of the program to include a Ph.D. program and an undergraduate degree program. The College is requesting **six faculty members** for this initiative.

SIGNIFICANCE

Computer animation is a high profile, demanding field. The film industry and television industry are turning increasingly toward computer animation. The computer game industry has emerged as a major part of the entertainment market. Texas A&M University has, since the inception of these fields, been the innovator and leader in this specialization.

Visualization and simulation are of growing importance to design, construction, manufacturing, planning, and even the hard sciences through scientific visualization. A steady stream of research support has been devoted to this field since the 1960's. With the introduction of high performance commodity computers, immersive visualization, virtual reality and simulation are expected to enter a new era of investment and research.

RATIONALE

The “Viz program” is clearly a signature program of the College of Architecture and Texas A&M University. Former students provide their expertise at Pixar, Disney, Blue Sky, Autodesk, Sony, Industrial Light and Magic, PDI/Dreamworks and numerous other leaders in the entertainment industry, contributing the special effects that leave audiences speechless. Viz faculty and alumni have become fixtures at the SIGGRAPH show and the Academy Awards.

It has been long a plan of the College of Architecture to expand the Viz program to both a Ph.D. degree and an undergraduate degree. This is part of the Vision 2020 plan to *Build the Letters, Arts and Sciences Core*, particularly focusing upon degree programs in the visual and performing arts.

INTERDISCIPLINARY IMPACT

The Visualization Laboratory has collaborated with numerous units across the university, providing video production services, animations, geographic information system models, and scientific visualizations. Some graduate courses using the VIZA designation are cross listed with Computer Science. The faculty of the Viz program, in collaboration with the Department of Computer Science, have submitted an NSF IGERT proposal to found a Ph.D. program in virtual spaces. This initiative will leverage that effort and help to achieve increased interdisciplinary cooperation.

ASSESSMENT/EXPECTATIONS

In four years, the result of this investment will be a functioning department of visual studies (or other name) that supports an undergraduate degree program of 75 to 100 students, a master degree program of 50 to 75 students, and a Ph.D. program of 10 students. All programs

will be highly selective in admissions, drawing from applicants who have qualifications among the best in the university.

Research activity will increase substantially, particularly with the inception of the Ph.D. program. Over the past three years, faculty associated with the Visualization Laboratory have been involved in about \$500,000 in sponsored research each year. This initiative is expected to double that amount by 2006 and increase to \$2,000,000 annually by 2008.

REQUEST

The College requests the following faculty positions:

- Undergraduate program leader. A mid-level or senior faculty position is needed to provide leadership in the development of the undergraduate program in visual studies. This position will require a modest amount of startup support, primarily in graduate assistants who can conduct research under the supervision of this new faculty member.
- Three positions to support the undergraduate visual studies program. These junior faculty members will be expected to devise new courses and curricula in visual studies. They are expected to mirror the current graduate faculty in that they will combine artistic ability with technical fluency in computing. They will be expected to initiate innovative and successful research programs that rely not only on graduate programs but also the undergraduate programs. A moderate amount of startup funds is required to provide graduate assistants.
- Two junior positions will support the existing graduate program and new advanced research studies. A moderate amount of startup funds will enable support of research initiatives and aid in recruiting of graduate applicants. Areas

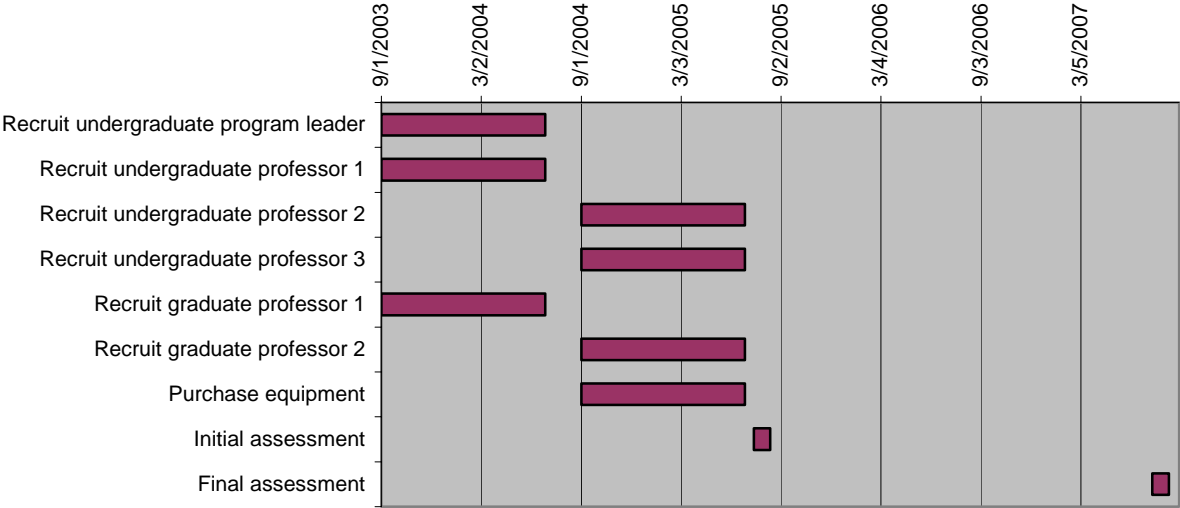
of expertise may include urban visualization and GIS systems, construction visualization, simulation, physically based modeling, or other specialization.

- Shared computing facility. The Visualization Laboratory already provides high quality video production and editing facilities. However, it has a need for an immersive visualization facility that can be used by students in either undergraduate or graduate programs. Staff support, maintenance and licensing will entail some continuing costs.

COSTS

Item	One time costs	Ongoing cost
Undergraduate program leader		\$ 90,000
Startup funds for undergraduate program leader	\$ 50,000	
Undergraduate junior professor 1		\$ 55,000
Startup funds for junior professor 1	\$ 40,000	
Undergraduate junior professor 2		\$ 55,000
Startup funds for junior professor 2	\$ 40,000	
Undergraduate junior professor 3		\$ 55,000
Startup funds for junior professor 3	\$ 40,000	
Graduate junior professor 1		\$ 55,000
Startup costs for graduate junior professor 1	\$ 50,000	
Graduate junior professor 2		\$ 55,000
Startup costs for graduate junior professor 2	\$ 50,000	
Immersive visualization facility	\$ 300,000	\$ 50,000
Total	\$ 570,000	\$ 415,000

Timeline



Department of Architecture

Level 1 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

The Department of Architecture is housed in the College of Architecture. It consists of 39 FTE tenure/tenure track and 19 non-tenure track faculty. With approximately 900 undergraduate and graduate students, it is the largest department of architecture in the United States. The department offers five degrees: Bachelor of Environmental Design (620 students), Master of Architecture (112 students), Master of Science in Architecture (25 students), Master of Science in Visualization Science (71 students), and Doctor of Philosophy (65 students).

The Department of Architecture provides its students with an opportunity for growth and development that few schools in the US can match. We request selection as a signature program of the university on the basis of the strength and national importance of our M.Arch, MS VS, and Ph.D. programs. **Eight new faculty positions** are needed to solidify national prominence.

SIGNIFICANCE

Worldwide, construction accounts for over \$3 trillion in annual investment. New construction accounts for 9% of the U.S. gross domestic product and employs 5.5 million people. Inefficiencies, mistakes and delays account for \$200 billion of the \$650 billion spent on construction in the United States, according to the *Economist* (15 January 2000). The housing industry is widely considered to be the bellwether of the nation's economy. When viewed from the holistic perspective of the life cycle of buildings, the design, planning and management of facilities is probably an overwhelmingly large segment of the economy.

Research into discovering increased efficiencies in the facilities industry is poised to become a major focus of investment. There is growing interest on the part of private enterprise, the Army Corps of Engineers, the Navy, the National Institute of Health, the National Institute of Standards and Technology, the National Institute of Building Sciences, the Government Services Administration and other agencies.

Investments in architectural education and research, particularly at the graduate level, will position the department for even greater prominence and success.

RATIONALE

In each of the past three years, the Greenway Consulting Group, a nationally recognized think tank for architecture, has ranked the architecture program at Texas A&M University in the top fifteen among 120 accredited programs in North America. Among public universities, the Department of Architecture at Texas A&M University has consistently been in the top ten.

The programs within the department are widely recognized for their rigor and research focus. The Master of Architecture program recently gained a six-year accreditation, the highest level of accreditation offered by the National Architectural Accreditation Board (NAAB). It is internationally recognized for its specializations in knowledge-based design, computer technology, sustainability, energy conservation, health care facilities and historic preservation. The MS Visualization Science program is unprecedented in the US; its innovative hybrid program combines computer science and visual art within an application and research-driven curriculum. The Ph.D. program in architecture is the largest in the United States of its kind.

The faculty of the department are internationally known and recognized. In comparison to comparable departments at other universities in the United States, more faculty members (28) hold doctoral degrees than faculty in other school. This year Dr. Malcolm Quantrill received the

James Haecker Distinguished Leadership Award for Architectural Research from the Architectural Research Centers Consortium (ARCC). The ARCC is the premier organization in North America focused upon research in architecture. The department has four faculty members who have received national recognition as Distinguished Professors from the American Collegiate Schools of Architecture (Ed Romieniec in 1985-86, Malcolm Quantrill in 1989-90, David Woodcock in 1990-91, and Alan Stacell in 1993-94).

Former students occupy key national leadership positions within the American Institutes of Architects (AIA), the National Architectural Accrediting Board, and the National Council of Architectural Registration Boards (NCARB) and are CEO's, presidents and partners in premier architectural firms. Nine American Institute of Architects (AIA) directors are Aggies, as are three AIA presidents and three AIA chancellors. Former students of the MS VS program are employed by every major computer animation company in the film industry. Former students have received Academy Awards for best animated short film.

The students in the Department of Architecture are among the most highly qualified at Texas A&M University. For the past several years, freshman admissions have been subject to enrollment management, and the admission targets are met before any other program in the university is filled. The M.Arch program receives over 250 applicants for 36 admission spaces.

INTERDISCIPLINARY IMPACT

The Department of Architecture has a long history of interdisciplinary collaborations. In the Master of Architecture program, sustainability studies are closely associated with Mechanical Engineering, Landscape Architecture and Urban Planning, and Construction Science. The health care specialization interfaces with the College of Medicine and the Department of Landscape Architecture and Urban Planning. The MS VS program cross lists courses with the Department

of Computer Science, works closely with both Construction Science and Landscape Architecture and Urban Planning, and collaborates with departments throughout the university. The three academic programs targeted for excellence will accelerate their cross-disciplinary interactions with faculty and professionals outside of the department.

ASSESSMENT/EXPECTATIONS

We will establish individuated quality enhancement assessment methods in the areas of knowledge-based design, visualization, and research methodology. In four years we expect to see the Master of Architecture program sustain ranking within the top ten in North America. We expect the MS Visualization Science program to evolve into its own department with an undergraduate feeder program as well as a Ph.D. research program. We expect the Ph.D. program in architecture to produce graduates who are placed in teaching positions in top universities and in world-class architectural practices. Specific metrics are:

- Achieve sustained top ten ranking of architecture programs by Greenway Group.
If the Gorman report includes architecture programs, achieve top ten ranking in it.
- Establish a Ph.D. program in visualization. Attain mention of the program in national popular press.
- Place Ph.D. graduates at 50% of peer institutions.

REQUEST

We request eight (8) new faculty positions (3 senior-level and 5 mid-level) and the equivalent of one (1) faculty position for salary equity. Developing new capabilities in the critical areas of health care, visualization, and research methods will elevate the three graduate programs to further national and international prominence. It is the intention that one-half of these new faculty hires be women and minority.

Our request is outlined below:

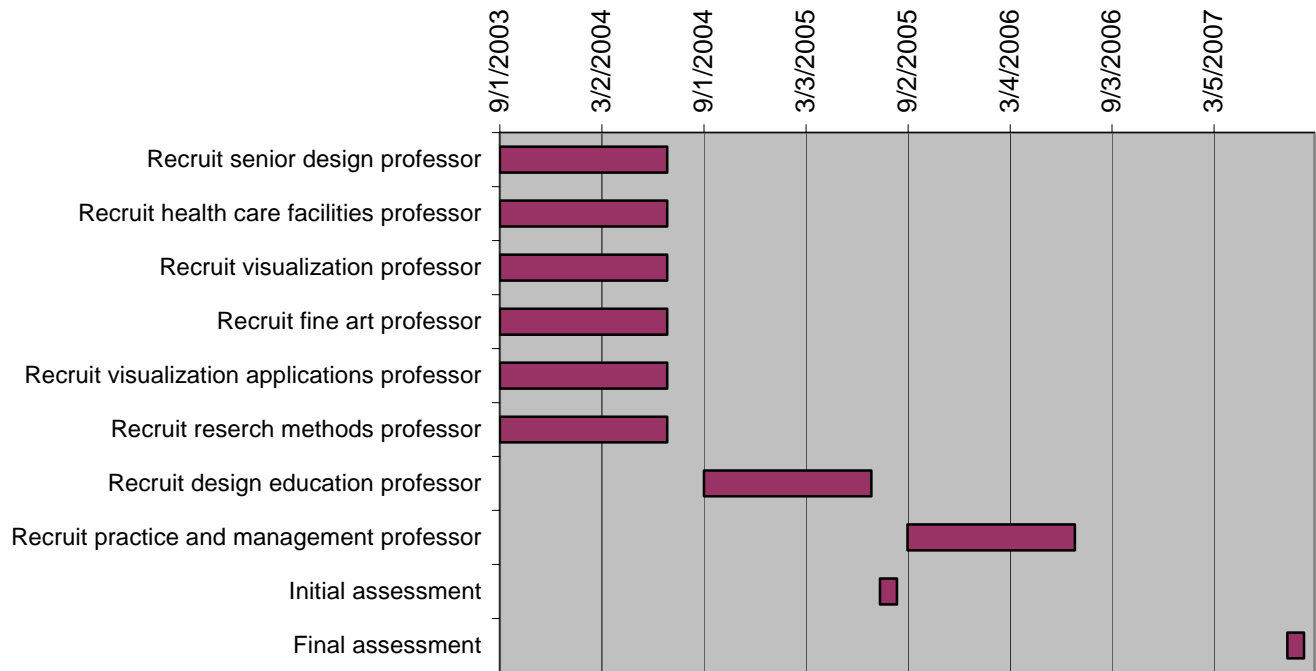
- Master of Architecture degree program. Two faculty are needed. A senior faculty member with a national reputation in design and studio instruction is needed to gain a spotlight on the program for design excellence. A junior level health care design specialist is needed to enable the Certificate in Health Systems and Design to expand its activity. Modest startup funds are also needed.
- Master of Science in Visualization Sciences degree program. Three faculty are needed to enable this program to expand its activities into both undergraduate education and Ph.D. research: a senior level computer scientist with expertise in visualization, a mid-level accomplished fine artist, and a mid-level visualization applications specialist. Adequate startup funds to enable acquisition of equipment and to support graduate assistants is also requested.
- Doctor of Philosophy degree program. Three new faculty members are requested. A senior level expert in research methods as applied to problems in architecture is needed to give focus and rigor to a very diverse research degree program. Development of a focus on design education will require a specialist at the at junior or middle level. The third position will be filled by a mid-level faculty member with a focus on practice and design firm management.
- Equity funds are needed in the amount of \$30,000 to enable the Department to achieve progress in providing compensation to faculty members at the level provided by competing programs at peer universities. While the Department is the largest in its field and maintains the most qualified of faculty, the student to

faculty ratio has increased to 24. Peer institutions not only pay their faculty more, but offer smaller classes.

Costs

Item	One time costs	Ongoing cost
Senior design professor		\$ 90,000
Startup funds for senior design professor	\$ 50,000	
Junior health care facilities design professor		\$ 65,000
Startup funds for junior design professor	\$ 25,000	
Senior visualization professor		\$ 90,000
Startup costs for visualization professor	\$ 350,000	
Mid-level fine art professor		\$ 65,000
Startup costs for fine art professor	\$ 25,000	
Mid-level visualization applications professor		\$ 65,000
Startup costs for visualization applications professor	\$ 25,000	
Senior research methods professor		\$ 90,000
Startup funds for research methods professor	\$ 50,000	
Junior or mid-level design education professor		\$ 65,000
Startup funds for design education professor	\$ 25,000	
Mid-level practice and management professor		\$ 65,000
Startup funds for practice professor	\$ 25,000	
Equity adjustment		\$ 30,000
Total	\$ 575,000	\$ 595,000

Timeline



Department of Construction Science

Level 2 Signature Program of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

The Department of Construction Science consists of 23 FTE faculty, most with a PhD or equivalent terminal degree, in several disciplines including engineering, architecture, education and law. About six hundred students are enrolled in the Bachelor of Science in Construction Science, and about 75 are enrolled in the Master of Science in Construction Management. The BSCS degree program has been continuously accredited since 1978 and is the only accredited construction program in the state of Texas.

The program already enjoys a stature as the premier construction higher education program in Texas and is currently among the leading programs in the nation. The **six new faculty positions** requested will elevate the program to national eminence.

SIGNIFICANCE

The construction industry accounts for one of the major segments of the economy, with nearly one trillion dollars in annual expenditures. Growing interest in construction management and facility management by the private sector and the public sector is focused upon reducing operation costs and improving the bottom line. Some estimates suggest that a third of construction costs are wasted. Investment in construction research can have an extraordinary return.

Funding agencies include the armed forces, DARPA, NSF, National Institute of Building Sciences, and the Department of Homeland Security. Industry funding is also available.

RATIONALE

There are currently no rankings of the approximately 120 programs of construction higher education. In the October 2001 issue of *Engineering News Record*, the fifty accredited construction programs were “profiled”. In every category, the Texas A&M construction program is either first or near the top. The Department of Construction Science has the full-time construction science faculty in the nation and the highest percentage of faculty with doctorates.

Enrollment management procedures maintain a 600-student target, and have resulted in steadily increasing quality of the student body, reflected in higher grades, reduced attrition rates, and a large number of campus leadership roles. The Texas A&M University student chapter of the Associated General Contractors was recognized this year as the outstanding chapter in the nation—competing with 140 other student chapters. For the past five years, every graduate who wanted employment had a job at graduation. Starting salaries have increased steadily from \$39,000 in 1997 to \$43,000 in 2002.

The Department is proactively seeking growth in underrepresented student groups. The number of female students has grown from seven percent five years ago to 15 per cent today through aggressive recruiting. Minority student ratios are about the same as the overall University, and initiatives are underway to increase the minority pipeline; for example, the CIAC has approved a diversity scholarship initiative, which is to be implemented. The CIAC has a strong interest in this area, which is an industry-wide problem.

The Department enjoys the benefits from the largest and most active industry advisory council in all of construction higher education. Approximately 65-75 companies participate and pay dues of \$2000 per year. This funding is used for faculty development, research seed money, student enrichment, and as matching money for fund-raising initiatives. The members of the

CIAC include many of the largest and most prestigious construction companies in the United States.

INTERDISCIPLINARY IMPACT

The Department maintains close ties with other departments in the college, particularly in areas of energy modeling, structural engineering, and land development. New positions will increase these connections and expand associations with the Visualization Laboratory.

ASSESSMENT/EXPECTATIONS

The initiative will be assessed by comparing research and teaching indicators:

- Sponsored research is targeted to increase to \$2,000,000 per year by 2007.
Research is expected to focus on building security, design and construction for health, sustainable and green construction, and construction visualization.
- An active and productive Ph.D. program will be implemented by 2007, and will enroll five students.

REQUEST

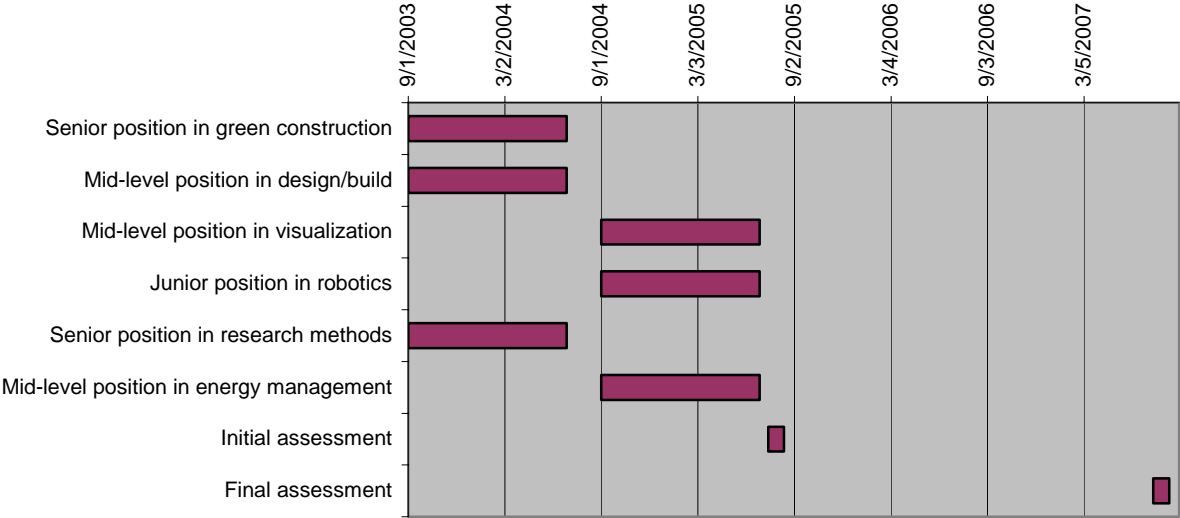
1. An increase of four faculty positions to focus on the existing programs will enable expanded research efforts and support the excellence initiatives of the College.
 - a. One senior-level position [“green construction-sustainability” initiative]. Salary: \$90,000/year. Startup cost \$100,000.
 - b. Two mid-level positions [“design-build” initiative and “advanced computer applications in construction” initiative]. Salary: \$75,000/year each; \$150,000. Startup costs: \$75,000 each; \$150,000.
 - c. One entry-level position [“robotics” initiative]. Salary: \$60,000/year. Startup costs: \$50,000.

2. Two faculty positions to support the development and creation of a PhD program.
 - a. One senior-level position in research methods. Salary: \$90,000/year. Startup cost: \$100,000.
 - b. One mid-level position [“facilities energy management” initiative]. Salary \$75,000/year. Startup cost: \$75,000.
3. A salary equity pool to bring faculty salaries up to the average of peer university programs. Cost \$95,000/year.

COSTS

Item	One time costs	Ongoing cost
Senior position in green construction		\$ 90,000
Startup funds for senior position	\$ 100,000	
Mid-level position in design/build		\$ 75,000
Startup funds for design/build	\$ 75,000	
Mid-level position in construction visualization		\$ 75,000
Startup funds for construction visualization	\$ 75,000	
Junior position in robotics		\$ 60,000
Startup funds for robotics position	\$ 50,000	
Senior position in research methods		\$ 90,000
Startup funds for research methods	\$ 100,000	
Mid-level position in facility energy management		\$ 75,000
Startup costs for graduate junior professor 2	\$ 75,000	
Equity funds		\$ 95,000
Total	\$ 475,000	\$ 560,000

Timeline



Department of Landscape Architecture and Urban Planning

Level 1 Signature Programs of the College of Architecture, Texas A&M University

April 14, 2003

INTRODUCTION

The Department of Landscape Architecture and Urban Planning is comprised of 11 Professors, 8 Associate Professors, 6 Assistant Professors, and 5 part-time non-tenure track positions. It offers five academic degree programs: the Bachelors of Landscape Architecture (BLA), the Master of Landscape Architecture (MLA), the Master of Urban Planning (MUP), the Master of Science in Land Development (MSLD) and a Ph.D. in Urban and Regional Science (URSC). The BLA, MLA, and MUP are accredited programs required for a professional license or national certification. There are about 150 undergraduate students and 150 graduate students. The department focuses on creating leaders in landscape architecture, urban planning, environmental policy, and land development. Graduates from our programs help plan and design the environments in which we live, manage the environment from a regulatory perspective, and create mechanisms for the development of the land, seeking to bring a balance among the social, environmental and economic demands moving our communities toward a sustainable future.

The department requests **six new faculty positions** to support its status as a signature program of Texas A&M University.

SIGNIFICANCE

Some of the most pervasive and persistent problems faced by modern nations include, urban decay, urban sprawl, deforestation, transportation, water and air pollution, the overuse of water, over dependence on non-renewable resources, decline in biodiversity, and abuse of the land. The LA&UP department seeks to address these issues and many more related concerns by

investing in research and education concerning the land, and what humans do on the land, to the land, and with the land.

RATIONALE

The BLA program is currently ranked #2 in the nation by the most recent Gourman Report, 2 one hundredths of a point behind Cornell. Preliminary reports from the team reviewing the accreditation of the MLA program are that it will pass the examination with high marks. The MUP program was ranked 16th by the Gourman report, ahead of Harvard and MIT. In 2001, the program was fully accredited for the maximum period of five years.

Our department has the highest proportion of faculty with doctorates among all accredited landscape architecture and urban planning programs in the United States. One faculty member received the Council of Educators in Landscape Architecture career achievement award in 2000. A faculty member was named a Fellow of the American Society of Landscape Architects in 2002, and another is nominated for induction in 2003. Nine faculty members have had or currently have National Science Foundation or National Institutes of Health funding for their research programs. One faculty member, Dr. Dennis Wenger, currently serves as program director at NSF. LA&UP faculty members account for more than 800 publications. Two of the top six journals in planning and landscape architecture are edited in our department.

Currently over 20 graduates serve at academic institutions, including U. of Virginia, Montana State University, Virginia Commonwealth University, U. of North Carolina, U. of Houston, Kansas State University, U. of Kansas, U. of Wisconsin, Colorado State University, Clemson University, Kansas State University, U. of Texas Medical Branch, Arizona State University, and Ohio State University. Our former students serve as principles in large design

firms, and in numerous executive positions in state and federal agencies. They also form the backbone of municipal planning in Texas.

The department is actively involved in physical space issues associated with Vision 2020. Faculty members from our department led the Bonfire Memorial Competition, and others are currently helping redesign the front entrance, developing diversity plaza, and serving as liaison to the Campus Planning effort.

The department has a long-standing commitment to research in environmental hazards, environmental influences on human health, evidence based design, and use of advanced computing in design or visualization.

INTERDISCIPLINARY IMPACT

The department is a key participant in the Sustainable Coastal Margins Program. The department collaborates with Texas Transportation Institute in the area of environmental management of transportation corridors, and with the College of Geosciences, College of Agriculture and others in the area of sustainable development. Through the Center for Health Systems and Design, the department works with the College of Medicine, Department of Physical Education, Department of Park, Recreation and Tourism, as well as the College of Architecture. LA&UP share two faculty members with the Department of Architecture, and one of those has a joint appointment in Medicine. Another faculty member holds a one-third appointment in the Department of Pediatrics in the School of Medicine.

ASSESSMENT/EXPECTATIONS

This initiative is expected to increase sponsored research in the department and support our graduate programs.

- Research funding and publications in computing and visualization will increase, reaching \$500,000 annually in four years and leadership among related fields in number of high quality publications.
- Research in health environments will reach steady productivity, with at least one six figure project each year.
- Rankings among similar programs will go up. At least one graduate program will be widely acknowledged and the best in the country.
- Popular press will recognize the high quality of programs such as sustainable land development.

REQUEST

The Department of Landscape Architecture and Urban Planning requests six new faculty positions over the next three years. The faculty and leadership of the department have identified four areas of critical importance to the future trajectory of the department. These areas are (1) advanced computing technology in design and visualization, (2) environmental health, (3) environmental hazards and sustainability, and (4) evidence based design and publication.

Over the past five years our department has doubled the number of women, and we anticipate further enhancing a diverse faculty by hiring more women and ethnic minorities with these positions. We have found that the best way to get a diverse faculty is to get excellent candidates to apply for the positions and then convince them to join Texas A&M University.

- Advanced Computing and Technology in Design. As our cities and towns begin to store more of their land records in digital and special format, increased opportunities for developing new ways to model, analyze, and visualize dynamic landscape and urban planning processes become available. Three positions are

needed to enable increased attention upon Geographic Information Systems and urban visualization.

- **Environmental Health Design.** In what is known as the healthy communities approach, the scope of health design has been enlarged from a focus on healthcare architecture to include entire cities, communities, and exterior human environments. The new position will enable us to enhance our national leadership in health design in landscape architecture and meet the increasing market demand for professional landscape architects with the specialty in this area.
- **Evidence-Based Design.** As a department that is leading the nation in peer-reviewed research, and edits two top journals in our disciplines, the department of Landscape Architecture and Urban Planning requests a position to pursue the editorship of the premiere journal in our fields: the Journal of the American Planning Association. Having such a prestigious journal along with the two we already have will clearly establish our department as a leader in evidence-based design and publication in our fields.
- **Entrepreneurial Sustainability.** The requested position will be a broad interdisciplinary position integrating strong backgrounds in both landscape architecture and planning. The faculty member must have broad abilities to communicate with designers and scientist from various backgrounds. This person will draw together the available data from a variety of sources, to analyze their implication for future outcomes. These analyses will almost inevitably be both spatial and temporal in nature.

Costs

Item	One time costs	Ongoing cost
Mid-level visualization salary		\$ 75,000
Startup funds for mid-level visualization	\$ 150,000	
Junior visualization salary		\$ 65,000
Startup funds for junior visualization	\$ 100,000	
Junior urban visualization salary		\$ 60,000
Startup funds for urban visualization	\$ 100,000	
Junior environmental health design salary		\$ 65,000
Startup funds for environmental health design	\$ 100,000	
Mid-level evidence-based design salary		\$ 75,000
Startup funds for evidence-based design	\$ 150,000	
Mid-level entrepreneurial sustainability		\$ 75,000
Landscape architecture position salary	\$ 150,000	
Total	\$ 750,000	\$ 415,000

Timeline

