

Report

of

The Washington Advisory Group, LLC

on

Research Capability Expansion

for

The University of Texas System

**The University of Texas at Brownsville/
Texas Southmost College**

**The University of Texas - Pan American
The University of Texas of the Permian Basin
The University of Texas at Tyler**

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The Washington Advisory Group, LLC

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**Report of The Washington Advisory Group on
Research Capability Expansion for
The University System of Texas
At Brownsville/Texas Southmost College (UTB/TSC), Pan American (UTPA),
of the Permian Basin (UTPB), and at Tyler (UT-Tyler)**

INTRODUCTION

The Washington Advisory Group (WAG) was engaged by the University of Texas System (UT System) to examine the research capacities and potential for expansion at eight of the UT System institutions. WAG divided the eight institutions into two groups and established teams to work with each of the two groupings. This report is the second of two reports and focuses on the four smaller, developing institutions listed in the report title.

As in its review of the larger institutions, our WAG team was asked to review information provided by the universities as well as information gathered independently before and after each visit. Appendix 1 details the scope of work for this study, including six questions to be addressed for all of the universities and four questions specific to each of the developing institutions reviewed in this report.

We held meetings with administrators, an array of faculty from many disciplines, community and business leaders, and periodically with students. Based on our review, the discussions and materials, and reports developed by each team member around the university he or she visited, we developed the individual reports that examine similar factors at each of these developing institutions.

Appendix 2 contains the biographical sketches of the team of individuals that carried out this project. We selected the members of this team based on criteria tailored to a review of developing institutions, including knowledge about university research and federally funded research; broad experience at and knowledge about community colleges, which are critical to each of the universities we visited; small college backgrounds; strong interests and expertise in minority-related issues and programs; and experience with economic development issues. We also chose at least some team members with specific backgrounds related to Texas. The goal was to provide a review team with the collective judgment, background, experience, and expertise to offer the UT System an authoritative review and assessment. Appendix 3 provides the dates and a broad overview of each of the visits to the four universities covered in this report.

Overview

The developing institutions we studied have varied strengths, but will have to make considerable strides to attain national and international research stature. According to the National Science Foundation's rankings of universities, only one of the four institutions in this report ranks among the top 589 colleges and universities in research expenditures for FY2000. With total research expenditures of \$1.6 million that year, UT-Pan American (UTPA) ranks 378th. By contrast, the four larger Texas universities WAG studied all rank among the top 250 universities. Clearly, the four developing or emerging campuses occupy a different range on the research spectrum. The research expenditures of the smallest of the larger campuses (UT-San Antonio), for example, totaled \$11.3 million in FY2000, while research expenditures at the largest of the emerging campuses (UTPA) totaled approximately \$2 million.

Using FY2002 data, the Texas Higher Education Coordinating Board more recently provided a basis for reviewing several developing universities in Texas (see Table 1 below). In FY2002, UTPA research expenditures totaled \$2.6 million; UT-Brownsville/TSC's (UTB/TSC) reached \$1.3 million, and UT-Permian Basin (UTPB) and UT-Tyler's reached \$980,000 and \$375,000, respectively.

Table 1. Research Effort and Sponsored Programs
(Total Expenditures for Research and Other Research-Related Sponsored Programs by Source of Funds, FY02)¹

University	Total
Stephen F. Austin	\$5,583,051
UT-Brownsville/TSC	\$1,286,638
UT-Permian Basin	\$ 980,905
UT-Pan American	\$2,605,758
University of Houston Downtown	\$1,270,494
Texas A&M International	\$ 677,346
UT-Tyler	\$ 375,821
Texas A&M Commerce	\$ 629,496

It is also worth considering the status of the four institutions' research strength in terms of the Carnegie Foundation classifications.² UTPA is the farthest along with its doctorate program in business and imminent doctoral program in education. Its next doctoral programs are likely to be in science/engineering, as a new dean is actively focusing on adding to the strength of the research faculty. This focus is worthwhile for its own sake and is relevant to the Carnegie rankings.

Research activity could perhaps be most enhanced via collaboration with co-located Regional Academic Health Center (RAHC) facilities. The new UT System executive vice

¹ Source: Texas Higher Education Coordinating Board, *Research Expenditures (FY02)*, Total Expenditures for Research and Other Research-Related Sponsored Programs by Source of Funds, FY02, Institutional Research and Planning, 09/25/03.

² The Carnegie classifications can be found at: <http://www.carnegiefoundation.org/Classification/>. They are as follows:

Doctorate-granting Institutions

Doctoral/Research Universities-Extensive : These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the doctorate. During the period studied, they awarded 50 or more doctoral degrees per year across at least 15 disciplines.

Doctoral/Research Universities-Intensive : These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the doctorate. During the period studied, they awarded at least ten doctoral degrees per year across three or more disciplines, or at least 20 doctoral degrees per year overall.

Master's Colleges and Universities

Master's colleges and Universities I: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. During the period studied, they awarded 40 or more master's degrees per year across three or more disciplines.

Master's Colleges and Universities II: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. During the period studied, they awarded 20 or more master's degrees per year.

chancellor for health affairs should make considering such opportunities a priority. In fact, in their strategic review, the System chancellor and vice chancellors might consider whether the RAHC located at UTPA, the one located on the UTB campus, and the RAHC in nearby Harlingen could jointly collaborate with research programs at both UTPA and UTB. Such an arrangement could significantly boost the research activity of all parties on a mosaic of projects. With a successful outcome, both UTPA and UTB could achieve the Carnegie classification of Doctoral/Research Universities-Intensive within a ten-year planning horizon.

Similarly, a significant opportunity for research collaboration between UT-Tyler and UT Health Center-Tyler (UTHC-Tyler) is under discussion at the highest levels of their administrations. The UT-Tyler report covers the details of this discussion and its robust potential for both institutions. Although the level of externally funded research at UT-Tyler is quite low, the institution has already positioned itself for a quantum leap in active research projects via collaborations with UTHC-Tyler. Our optimism about this potential growth is based in part on UT-Tyler's track record in research collaborations with other more distant research partners, including Texas A&M University, Stephen F. Austin University, and the National Aeronautics and Space Administration. While the metrics for UT-Tyler do not yet show their full impact because these collaborations are credited to the partner institutions, the collaborations provide UT-Tyler with a growing and effective means to bootstrap its research future. UT-Tyler could well achieve Doctoral/Research Universities-Intensive Carnegie classification within a decade. All UT System institutions would benefit if the system began facilitating and rewarding such collaborations in its strategic planning.

In the two Carnegie classifications for Master's Colleges and Universities, all four of the campuses seem positioned to exceed the minimums.³

In general, these emerging institutions recruited their faculty to deal with the crush of entering undergraduate students in several of the most economically challenged regions of the state: East Texas, West Texas, and particularly South Texas. These are largely non-traditional students, meaning students who are employed in part- or full-time jobs, daily commuters to campus, or supporting families, in addition to often being first-generation college students. As a result, the enrollment at these institutions continues to increase rapidly, and students face extreme pressures in meeting the time commitments of college work, whether for instruction or research. Yet, in all four of the emerging institutions, some faculty have dealt with the instructional loads and successfully developed and sustained nationally competitive research projects. These exemplary faculty provide a benchmark for the research future of the four emerging campuses.

It is important for these four developing institutions to pursue research at the same time that they must succeed in educating a population so desperately requiring a college education. An institution that makes its primary contribution to a community by educating its children—children for whom education is the primary hope for a better life—may believe that research activities detract from its mission. This education brings value to the students and their futures, as well as the futures of their families and communities. UTPA and UTB/TSC, for example, provide a vital service to Texas with their work on its southern border, albeit a perhaps different service than more research-intensive institutions in the UT System. So why should the same institutions that provide this crucial educational service also focus on research? We suggest there are several answers:

³ See Carnegie definitions in footnote 2.

- First, these regions of Texas face major issues research can address including health, K-12 education, and indigenous business development. Three of the four campuses, for example, reside near parts of the UT Health Center complex. All three of these health-related centers can multiply their beneficial affects to the state via selected collaborative research projects with neighboring UT campuses, both in public health areas and through the eventual commercialization of intellectual property that the sponsored research will likely generate. To be specific, UT-Tyler is near the UT Health Center-Tyler; UTPA is co-located with RAHC facilities associated with the UTHSC-San Antonio; and the RAHC at UTB/TSC is affiliated with the UTHSC-Houston.
- Second, educational research conducted and applied with the schools of the region—particularly if it focuses on improving the quality and quantity of college-prepared high school graduates—will directly improve the region’s economic strength and vitality. Virtually all of the students entering these institutions have graduated from the region’s high schools or community colleges; most will choose to remain in the area. Students at these campuses have also had many opportunities to pursue higher learning in part because of early outreach programs, including GEARUP⁴, TRIO⁵, and similar national programs designed to improve educational effectiveness with at-risk populations, and these programs often get implemented through cooperative projects between schools or colleges of education and K-12 school systems. Further, virtually all of the teachers in the K-12 schools around these developing institutions received their education and professional training at regional UT campuses.
- Finally, the colleges of business at these emerging campuses can have a disproportionately positive effect on the success of businesses in their regions. For example, these colleges can influence practice through research that speeds the development of new businesses and improves the competitiveness of existing businesses. The College of Business at UTPA is already engaged in such research through its doctoral program. In addition, the UTPB business dean, one of the most published scholars at that University, has set a standard of research and refereed research publication that is a model for her colleagues across the campus.

We should also note that the civic and political leaders of each region expect the local university to play a critical part in their community’s growth and development. This was clear in the personal meetings the WAG team held with the community leaders in each region. It is no wonder they feel so strongly. Each university ranks as one of the largest employers and purchasers of goods and services in its region, and educates or provides professional certification for many if not most of the indigenous workers in the region.

But the mutually beneficial research projects in health, education, and business relate by no means exclusively to the state’s three less-developed regions. As the reports indicate, each campus has a number of other research bright spots. The detailed campus reports describe other

⁴ The GEARUP (Gaining Early Awareness and Readiness for Undergraduate Programs) program is a discretionary grant program funded by the U.S. Department of Education designed to increase the number of low-income students who are prepared to enter and succeed in post-secondary education.

⁵ TRIO refers to a series of programs funded under Title IV of the Higher Education Act of 1965 to help low-income Americans enter college, graduate and move on to participate more fully in America’s economic and social life.

benchmark opportunities in the sciences, engineering, and mathematics—as well as humanities and the arts.

In summary, we would prioritize the ideal objectives of each of the emerging campuses as follows:

1. Educate largely non-traditional students.
2. Continually develop selective, high-quality research programs.
3. Actively participate in the economic development of their communities.
4. Engage in programs of community service for the citizens of their region with special needs.

The campuses must succeed at the first priority to achieve the second. Success in the latter two priorities also requires success in both the first and second. All four campuses are making transitions in dealing with these priorities and would benefit from the UT System’s advice and support.

The campuses will probably face their toughest decisions when choosing which areas of research they can develop to a competitive level while maintaining the high quality of their educational programs. They will have to choose carefully to avoid research tracks in which they are unlikely to be competitive. But it is doubtful the educational programs can approach or maintain competitiveness without a critical mass of relevant and respected research programs. Without such a critical mass, neither the best senior faculty nor the best young faculty can be recruited or will stay. The same goes for the best students, a pool of talent these regions should fight to keep.

Some Aggregated Perspectives

The four developing institutions covered in this report and the four larger UT institutions reviewed separately share some similarities. In the report on the larger universities, under “The Path to Tier 1 Status,” we note several issues that will determine how institutions will progress and succeed in reaching the Tier 1 goal. While the institutions covered in this report do not seek that lofty accomplishment, the issues addressed for the larger institutions apply as well to these developing institutions, if to a lesser degree. For example, the point about the need for a strategic plan in the larger institutions also applies to the emerging institutions. Likewise, since the emerging institutions are unlikely to see increases in state appropriations, they also must identify new resources to fund increased research capacity. Similarly, because of state resource constraints, the emerging institutions must also seek increased funds from the same sources as their larger peers, including the federal government, industry, alumni and foundations, and tuition and fees.

All UT institutions also face the same pressures in recruiting faculty and competing with other institutions inside and outside the state for talent. No matter the campus, it is costly to recruit faculty. And the emerging institutions, like their larger peers, must encourage and foster a faculty research culture. In this respect, the System might consider establishing a research professorship program to provide additional supplemental support and statewide recognition to all campuses attempting to hire outstanding research faculty.

As noted with the larger institutions, unproductive competition and historical strife seriously hinder relationships between the institutions, particularly UTPA and UTB/TSC. Their

individual and collective future would improve if collaboration replaced virtual non-communication. New leadership at UTPA offers that possibility. The WAG teams agree that, no matter how large the institution within the UT System, it would benefit from research and educational collaborations. The emerging institutions have fine examples of such activities, including with community colleges, other academic institutions, industry, federal agencies, and state and local governments. We strongly encourage collaborations, not least because they foster intellectual breadth and lead to stronger proposals for support and stronger final projects.

Our team and the individual reports also lead us to conclude that new graduate programs at the emerging institutions, particularly at the Ph.D. level, should develop in a highly selective fashion. Professional master's degree programs should only be instituted where they can be justified. In several instances, the emerging institutions have programs of national stature and distinction, such as gravitational wave physics at UTB/TSC; nursing at UT-Tyler; and the arts facility at UT-Permian Basin to name a few. But issues of national recognition are less paramount with the emerging institutions. These institutions would be more likely to achieve success and add optimum value within their region and Texas by focusing on programs the region needs rather than on the national stage.

Though technology transfer will play a more significant part in the immediate future of the larger and more developed institutions, the developing institutions also may well have opportunities to commercialize intellectual property and potentially stimulate the creation of new companies. If they do so, the developing institutions could have a more significant impact on both the type and scale of economic development in their regions.

The reports on the developing institutions in the UT System that follow discuss each of the four institutions in substantial detail.

**THE UNIVERSITY OF TEXAS AT BROWNSVILLE/
TEXAS SOUTHMOST COLLEGE (UTB/TSC)**

Overview and Mission

TEXAS SOUTHMOST COLLEGE

When Texas Southmost College began as the Junior College of the Lower Rio Grande Valley in September 1926, it enrolled 84 students. In 1931, when the institution changed its name to Brownsville Junior College, it had a faculty/staff of 20, and enrollment stood at 224 students. The next year, enrollment declined to 161. Enrollments continued to decline during World War II. But by 1945-46, large numbers of soldiers returned from the war and the college's enrollment surged. In 1948, in a move of great significance and importance to institutional expansion, the campus moved to Fort Brown, the current home of the partnership institutions. In 1949, the junior college became Texas Southmost College (TSC). The same year, the decision was also made to form a governing district for the college separate from that of the school district.

During the ensuing years, the college broadened its mission and goals, enrollment grew by 30 percent, the operations of the institution's board changed markedly, and several changes in institutional leadership occurred. Finally, in April 1986, Dr. Juliet García, then dean of arts and sciences at TSC, was inaugurated as president.

UNIVERSITY OF TEXAS AT BROWNSVILLE

In 1973, the Pan American University Extension Center opened its doors on the Brownsville campus of TSC. In September 1977, Pan American University at Brownsville became the successor to the extension center. In May 1989, a bill from the Texas Legislature became law and made Pan American University at Brownsville a formal part of the UT Texas System and re-named the institution the University of Texas-Pan American at Brownsville. In September 1991, after considerable debate in the legislature and elsewhere, the institution officially became the University of Texas at Brownsville. Dr. Homer Pena became the institution's founding president. In January 1992, Dr. Juliet García, formerly TSC's president, succeeded him. In 1997, UTB/TSC received approval to add lower-division courses.⁶

UTB/TSC TODAY

UTB/TSC's academic programs are organized into three schools (business, education, and health sciences) and two colleges (the College of Liberal Arts and the College of Science, Mathematics, and Technology). Its budget for FY04 is almost \$90 million, about one-quarter of which is expected from tuition and fees and about 40 percent of which comes from state appropriations; the remainder comes from grants and contracts, Pell Grants, and other sources.

In 1992, slightly more than a decade ago, UTB and TSC formed a partnership that brought together an upper-level university with an open admissions community college. Under the partnership agreement, TSC continues to own the campus, and today owns all but two (science and technology and health sciences) of the campus buildings. UTB/TSC reports to the Regents of the UT System as well as to the TSC Board of Trustees. While being accountable to two sets of trustees no doubt has its disadvantages, the partnership has brought significant

⁶ This historical information draws heavily upon Carl S. Chilton Jr.'s *The Community's University: Origin and Progress (A History of UTB/TSC)*. UT Brownsville and Texas Southmost College, 2002.

benefits; two positive examples include access to each other's physical facilities and the TSC Board's authority to levy taxes. The latter provides flexibility in decision-making and acquiring land to accommodate campus growth as well as assuring continued strong community support.

UTB/TSC's mission is:

to meet the needs of the South Texas Border Region and Lower Rio Grande Valley by providing: accessible, affordable, post secondary education of high quality; research to expand knowledge; programs of continuing education, public service, and cultural value.

UTB/TSC has carried out its mission extremely well: it has provided quality undergraduate education to its atypical student body as well as a community-college level education to a large percentage of its population. Over 7,800 of the students are enrolled at the lower level and 2,800 at the upper level of the undergraduate program. Slightly less than 800 students are enrolled at the graduate level.

The need among UTB/TSC students for remedial courses is also diminishing. For instance, campus representatives reported that in 1995, 96 percent of incoming students had taken some form of remedial coursework at UTB/TSC. In 2002, the proportion of incoming freshmen taking remedial coursework had dropped to 52 percent. Though the initial cohort of students who began in the GEARUP program⁷ in the mid-1990s has not reached college age, indications are that this and other outreach efforts are improving the quality of preparation students receive prior to entering college.

The student profile of UTB/TSC resembles the demographics of Cameron County where the institution is located. The county's population is heavily Hispanic and classified as one of the nation's fastest-growing counties and also one of the poorest counties. At UTB/TSC, almost 92 percent of the student population is Hispanic, 61 percent are women, and the average student age is almost 26 years. Seventy percent of the students receive some financial aid.⁸ Almost 20 percent of the students at UTB/TSC are single parents.

UTB/TSC clearly serves mostly non-traditional students. The institution also has unique successes doing so. It ranks 26th in the nation and 7th in Texas as a producer of Hispanics with graduate degrees. It also ranks 3rd in the nation for graduating Hispanics with degrees in foreign language and 2nd in the nation for graduating Hispanic with baccalaureate degrees in mathematics.⁹

Still, its students continue to face major hurdles. With a median income per household in Cameron County of \$26,155 in 1999, the institution's home county ranks second only to Hidalgo County (where UTPA is located) as the lowest per-capita income among all counties in Texas. Since most UTB/TSC students come from Cameron County, the average financial aid need per student is \$10,332. But the average package available per student is only \$6,408.

⁷ The GEARUP (Gaining Early Awareness and Readiness for Undergraduate Programs) program is a discretionary grant program funded by the U.S. Department of Education designed to increase the number of low-income students who are prepared to enter and succeed in post-secondary education.

⁸ Source: *2001 Headcount Enrollment by Classification, Gender, Ethnic Origin*, Texas Public Universities, fall 2001.

⁹ "Closing the Gaps: UTB/TSC," UTB-CBIRD Report: *At the Crossroads*, 2002, p. 68.

Meanwhile, the college-going rate in South Texas remains at 15 percent, in contrast to the statewide rate of 30 percent. To close the participation rate, UTB/TSC would have to double its enrollment to 20,000 students by 2010. This presents a dire challenge given Brownsville's economic predicament, as noted above.¹⁰

UTB/TSC: A UNIQUE GOVERNANCE STRUCTURE

The partnership between UTB and TSC began in 1991 to maximize and bring additional educational opportunities to the communities of the Lower Rio Grand Valley. At that time, TSC was the state's second oldest community college, and UTB was the state's newest freestanding university. The partnership was intended to offer students a seamless educational process by eliminating artificial barriers for transferring between two institutions located on the same campus, while fulfilling the distinctive responsibilities of each type of institution.

The two partners maintained their separate boards as they consolidated personnel, policies, and procedures; they also established a traditional organizational structure for operation of the partnership. The 1992-93, the University Catalog contained a single mission statement for the partnership and said that the UTB/TSC partnership created "America's first Community University." The partnership created a single operating entity, a single admissions process, and a single faculty that, in effect, merged the two institutions. The UTB/TSC partnership is unique in American higher education and provides the best of both worlds for the institution.

While the two governing boards each retain their statutory responsibilities, the Partnership Agreement holds that a subset of three members of the nine-member UT System Board of Regents and three members of the seven-member TSC Board of Trustees constitute the "Partnership Governing Board." That board, which meets regularly, discusses, and resolves issues related to the partnership between the two institutions.

In 1999, the TSC Board and the UT Board of Regents signed an agreement to continue the partnership for 99 years. Chapter 51 of the Texas Education Code also provides for the governing board of each institution to appoint members to a Partnership Advisory Committee, which meets annually, and is composed of three members from each board. This committee makes recommendations concerning the development of coordinated programs and services to meet the needs of the affected communities.

The partnership also works because of President García and a committed, hard-working TSC Board of Trustees. In this regard, we want to cite the contribution of the present leadership and members of the Board of Trustees and the historical involvement of Ms. Mary Rose Cardenas, whose leadership and commitment to the partnership are particularly noteworthy.

The eight-year partnership has been successful, as the growth and viability of the institution suggest; for example:

- The combined resources have created 19 new degree programs.
- For the longer term, the partnership intends to initiate new occupational-technical programs as business developments in the South Texas border region require.

¹⁰ Material provided to WAG from UTB/TSC, particularly UTB-CBIRD Report, *At the Crossroads*, pp.62-69.

- Through new distance-learning technologies, the institution has begun the first on-line degree of the UT telecampus, the educational technology master's degree.

We must also note that the boundaries and service areas of UTB/TSC have expanded since the partnership began, and the institution has established links with other UT System institutions and with Mexico and Mexican institutions of higher education.¹¹

UNIVERSITY LEADERSHIP TEAM

This may be an appropriate place to provide our views on President García and her leadership team. UTB/TSC has a president who has vision and stature, and who recognizes that Hispanic students should play an increasing role in Texas and the country as a whole. Her focus on melding the strengths of a junior college with the potential of a university is remarkable. She understands the scope of benefits the UTB/TSC can bring to the economic development of the border region of Southeast Texas—an area that desperately needs improved educational opportunities—and ultimately of Texas and the nation. The provost, Dr. José Martín, is also a remarkable and creative administrator. His innovations in encouraging faculty, expanding capacity, and getting more from less in the recent budget environment are a credit to him and the institution. The other senior leaders at UTB/TSC are also of high quality. President García should be commended for assembling a first-rate leadership team.

The University, under President García's leadership, would greatly benefit from additional commitments and support from the state and the UT System. Her interest—actually her passion—in wanting to close the gap among the institutions of higher learning in Texas, as well as among the different economic, geographic, and ethnic groups within the state, deserves serious attention among decision-makers. The state does face an era of constrained resources and, by 2010, the huge wave of college students is expected in Texas. But in President García, Texas has a dedicated and talented leader, and decision-makers should work with her and her colleagues to craft solutions to these important issues.

Current Research and Educational Strengths and New Opportunities

COLLEGE OF SCIENCE, MATHEMATICS, AND TECHNOLOGY

The faculty in the College of Science, Mathematics, and Technology is the strongest on campus in academic/research qualifications, securing external support, and research productivity. Strong research programs are underway in the Departments of Biological Sciences as well as in Physics and Astronomy which also provide opportunities for undergraduates to participate in research.

Department of Physics and Astronomy

Since 1996, the Department of Physics and Astronomy faculty has quadrupled in size, from two to eight faculty. This expansion resulted from external and competitive grants that supported the hiring of the new faculty. Provost Martín's offer to convert any grant-supported

¹¹ UTB/TSC Office of Data Management and Reporting. Institutional Profile (Fall 1998-Summer 2001), 8/4/03. "History and Operation of the UTB/TSC Partnership." Also the informative and interesting book by Carl S. Chilton, Jr. *The Community's University: Origin and Progress (A History of UTB/TSC)*. Published by UTB/TSC, 2002, was most useful in this history. Also "Partnership Overview" section of *Agency Strategic Plan for the 2001-2005 Period*, UTB/TSC, pp.4-8.

faculty position into a permanent faculty line following four years of external support is innovative and offers a major incentive for faculty to aggressively seek outside funds. In our judgment, this approach is a model that should be replicated more broadly within the UTB/TSC community and the UT System. To be successful, it would require remarkable faculty. At UTB/TSC, Professor Mario Diaz is such an individual. (Dr. Diaz and his group recently were awarded a \$5 million NASA grant to create the Center for Gravitational Wave Astronomy.) When fully implemented, Provost Martín's approach will offer a key strategy for retaining superb faculty, sustaining strong programs, and appealing to prospective funding officials. It also provides a means to significantly increase research capacity in an era of constrained resources.

We also heard concerns about the unusual arrangement in physics: on the campus, UTB/TSC physics faculty offer courses for master's degree students who later receive their master's degrees from the University of Texas at El Paso. These graduates are counted as UTEP alumni even though they have received their coursework and training on the UTB/TSC campus. This situation will be remedied with the recent approval of a Master of Science degree in physics for the UTB/TSC campus (approval provided by the Coordinating Board on January 29, 2004). Demand for this master's program is expected to continue as the number of UTB/TSC students pursuing the B.S. degree in physics increases. We were most impressed with this department and its diligence in securing the support for this important master's program. As the program grows in size and stature, it will continue to improve.

Department of Mathematics

In discussions with several faculty in the Department of Mathematics, we were told that five of the 22 members of the department's faculty actively engage in research. One of these faculty has established an Honors Mathematics Group which currently has 10 members. This group could be the focus of a concerted departmental effort to get more of the institution's Mexican American students to pursue advanced degrees in mathematics, including the master's degree in mathematics at UTB/TSC, should the institution receive approval to offer such a degree. Additional faculty interested in conducting mathematics research could benefit other science programs at UTB/TSC. Faculty with expertise or interests in mathematical physics, mathematical or computational biology, and mathematics education also could add greatly to this department and the university's growth in scientific research and education.

Department of Chemistry and Environmental Science

The Department of Chemistry and Environmental Science is burdened with a substantial teaching load. The department has attracted some fine young faculty but seems unable to encourage research. The teaching loads and the spartan office and space situation make initiating or sustaining research programs and morale increasingly difficult.

The department has 35-40 chemistry majors, and, in recent years, has been graduating about a dozen students per year. The department's focus should remain on increasing and strengthening its undergraduate offerings.

The department offers a Bachelor of Arts degree in chemistry, and the faculty would like to add a Bachelor of Science degree. With the growing reputation of the mathematics and computer science departments, this addition could be appropriate.

A vacancy in the department has been designated for a faculty member who could work on the "Nano on the Border" initiative. However, the institution has had little success in

attracting such an individual. Since faculty in the nano areas are some of the most highly recruited faculty nationally, this problem is not surprising. If stronger research ties could be developed with the Regional Academic Health Center (RAHC) on campus, a review of the nano focus of that search could be in order.

It should be noted that when we asked faculty about the RAHC research agenda for the purposes of potential collaborations (as we envisioned at UTPA and as reflected in the ties between the UTHC-T and UT-Tyler), they demonstrated little knowledge of potential overlapping research interests. The institutions should take steps to remedy this situation, possibly through a multi-departmental discussion about common research interests with RAHC officials locally and beyond. The UT System's new executive vice chancellor for health affairs should review this situation as well.

Computer Science Department

The Computer Science Department offers courses at the undergraduate level. It has about 200 undergraduates yet only graduates 6-10 per year. There is some discussion about a master's program in computer science, but such a program may be several years away. The department needs to continue to provide much-needed support to students in the other science and computing-intensive disciplines. The department's immediate focus should remain on strengthening and increasing its undergraduate curriculum offerings.

Department of Biological Sciences

The Department of Biological Sciences has historically been strong in areas such as biodiversity, ecology, and marine and subtropical biology. More recently, the department has developed a strong focus on biomedicine as a means of broadening the backgrounds of its graduates for the challenging job market. These areas offer some potential for development. In the broad biological areas related to marine and subtropical biology, the Lower Rio Grande Valley provides a rich laboratory for exploration, and its reliance on fisheries—both recreational and commercial—as well as tourism, underscores the need for continued emphasis on environmental sustainability.

The rapid success of the biology group, led by Professors Luis Colom and Gerson Peltz, is probably attributable to the fact that Colom came to UTB/TSC with an RO1 grant from the National Institutes of Health. This grant was a key factor in expediting his research program. Hence, it appears that successes in funding have been tightly connected to UTB/TSC's ability to hire senior or advanced junior faculty with secured extramural funding. But replicating this success may be more challenging in such areas as biology than in such areas as gravitational wave physics. In biology, for example, young new faculty do not receive sufficient release time, lack adequate start-up funds, and do not have sufficient research laboratory space to carry out extensive research programs. Consideration should be given to adding several new faculty members to decrease the teaching load and augment the growing research strength in biology. Stronger ties with the RAHC could buttress the case for additional faculty.

Collaboration with the Regional Academic Health Center (RAHC)

The academic health units in Brownsville and Edinburg have much in common. Strengths at one institution can complement similar areas at the other institution. We are aware of the history of conflict between the institutions, but we strongly encourage President García and the soon-to-be-named UTPA president to overcome this history for the betterment of the Rio

Grande Valley and its citizens by developing a mutually beneficial institutional research, educational, and political agenda. Accomplishing that would help students at both institutions and the citizens of this region. Given the depth of some historical tensions and the breadth of potential new interests, it will take strong presidential leadership to make such collaborations one of the highest priorities in the days ahead. Only then will faculty involvement and commitment emerge, and only then will it be possible to overcome perceived campus problems, including teaching loads that are perceived to be so heavy that faculty argue they cannot become involved in collaborating.

An example of such potential collaboration is as follows: while the RAHC (UTHSC-Houston) is outside of the College of Science, Mathematics, and Technology, it is inside the biomedicine area, has a public health focus, and can provide important collaborative activities for both faculty and students. For the benefit of both institutions, UTB/TSC's School of Health Sciences and UH's School of Public Health also should develop, expand, and accelerate their ties. Both sides have lacked drive to do so. We urge UT's new executive vice chancellor for health affairs to make it a priority to achieve these closer ties and give the needed support.

The newly created Center for Biomedical Studies will provide further opportunities for collaborations with the Department of Biological Sciences and the School of Health Sciences, including nursing, and the RAHC. In combination, these units can make a major contribution to the health and quality of life in the Lower Rio Grande Valley.

We encourage more dialogue among these players, as well as increased involvement of the various RAHC components located in other communities such as Edinburg. Such departments and centers should capitalize upon promising synergies. They could address, for example, opportunities related to bioterrorism, communicable diseases, and other concerns that emerged from the September 11 tragedies. They also have a chance to provide another major public health contribution by assisting in understanding and reducing diseases prevalent in South Texas. More cooperation would also significantly add to the University's strong relationship with Brownsville and the Cameron County community.

At all academic institutions—and UTB/TSC is no different—other departments (in addition to those noted above) such as psychology, neurosciences, mathematics/statistics, and nursing can play an important role and benefit from a broad discussion about strategic research and potential collaboration across the biomedical areas and with the RAHC.

Other Issues

The search for a new dean of the College of Science, Mathematics, and Technology should result in the selection of a research-oriented faculty member with a strong commitment to integrating research with education. One of the first challenges this individual will face will be the review departmental leadership within the college. Selected rotational assignments could be considered to inject new ideas and styles into a number of key departmental leadership positions.

SCHOOL OF EDUCATION

Dean Sylvia Cavazos Pena of the School of Education informed the WAG team during our visit that a growing number of the school's 41 faculty lines (13 of whom are tenured) are actively engaged in research. Dean Pena noted that she had been involved in negotiating a three-course load for faculty engaged in research, a reduction of two courses in the school's normal teaching load. She told us that the education faculty are particularly proud of the 92 percent pass

rates of its teacher education graduates on the state's ExCET test (to meet state standards, at least 75 percent of a cohort of first-time takers from an institution must pass the first time that they take the test). The WAG team also was impressed that this 92 percent pass rate at an open admissions institution in South Texas compared favorably with the reported 96 percent pass rate at UT-Austin, a highly selective institution that admits some of the best-prepared students in the state and beyond.

Concerns expressed by the faculty included the inability to fill current faculty vacancies, inadequate library resources, the lack of Internet-ready laptop computers for a model classroom the school wants to develop, the need for an instructional technology laboratory, and the lack of funding to support faculty travel. The new Education Business Complex now under construction may address some of the infrastructure needs. But the new dean of education, Dr. Carlos Stockton, who arrived in January 2004, immediately faces a number of related issues.

The clearest and most immediate concern our team identified in this school is the need to fill approximately a dozen existing—but vacant—faculty lines. A number of these lines have become vacant through recent retirements. We were told of the difficulties attracting faculty, which included the improving pay levels provided by the local school systems and the socio-economic environment in Brownsville, which particularly affects candidates' spouses. Yet, the negotiated reductions in teaching loads among this faculty, and the faculty's opportunities and responsibilities to provide teaching personnel for the local community make clear that the school must recruit and select more high-quality faculty. This will have to be one of Dean Stockton's highest priorities. We particularly encourage the University to seek the active involvement of its outstanding community leadership in these recruitment efforts. The encouragement that impressive individuals from outside the university give to new faculty to relocate can be important and effective. With the incredible quality and dedication to UTB/TSC that we saw in the community leadership we met, we have no doubt such an extra effort would pay great dividends.

Closed Loop Phenomena

We shared discussions about the potential impact the School of Education has had and could continue to have on the local community and, by extension, the local economy. More than 90 percent of UTB/TSC's incoming students come from Cameron County, and UTB/TSC provides more than 85 percent of the teachers for the two counties' schools around the Brownsville area. High-quality teacher education graduates will eventually lead to better students at the university and better-prepared college graduates seeking employment in the Brownsville area.

One by-product of the University's relationship with the local school system is that many UTB/TSC graduate students in education come from the local school system. It is the largest graduate program at UTB/TSC. This type of graduate student, who often works as a full-time teacher, generally will elect the non-thesis option at the master's level. While understandable, such a situation does not support strong research activity among the education faculty, nor is it likely that students who graduate with a non-thesis master's degrees will consider pursuing the Ph.D. degree. This concern affects our view of the Ph.D. proposal discussed below.

Ph.D. Proposal

We were told about preliminary discussions of a possible collaborative doctoral program in curriculum and instruction with the University of Houston. An existing master's program

brings in about 20 new students each year and has recently been graduating about six to eight per year. We are aware that, because of this growth at the master’s level, discussion has grown about a doctoral program with either an Ed.D. or a Ph.D. that UTB/TSC might offer. WAG encourages a review of this situation upon the arrival of the new dean. Strengthening the bachelor’s and master’s programs and expanding efforts in the community might provide more long-term benefits to the institution than creating such a doctoral program at this time. Indeed, expanded ties with the science departments could result in stronger math/science education activities and benefits to the university and community. The university could expand such ties with several new faculty in the science areas and in the School of Education.

INTERNATIONAL TECHNOLOGY EDUCATION, AND COMMERCE CAMPUS (ITECC)

Major renovations and program expansion are underway at the Amigoland Mall, a facility the university acquired in 2002 and converted into the International Technology Education and Commerce Campus (ITECC). Staff enthusiasm and morale are high, both because of the renovation successes and also because of program successes. For example, the Workforce Training and Continuing Education (WTCE) program is a key element of this campus’s efforts with the community. During the five-year period from FY99-FY03, significant positive changes have occurred in key indicators of progress in the Workforce Training and Continuing Education (WTCE) Program. As the data in the table below indicate, WTCE enrollment has increased dramatically, almost tripling the FY99 enrollment. Moreover, there have been significant increases in annual revenues and income from grants and contracts, while the annual education and general budget has decreased 55 percent during this time.

Table 2. UTB/TSC WTCE Program Statistics for Selected Years¹²

Area	FY 1999	FY 2002	FY 2003
Annual Enrollees	5,900	16,500	16,560
Annual Revenue	\$2,526,787	\$7,536,589	\$6,590,00 (thru 8/03)
Annual E&G Budget	\$781,287	\$384,252	\$354,190
Grants and Contracts	\$1,465,336	\$7,505,320	\$6,539,800

During FY04, three start-up auxiliary-training businesses (Child Development Center, Computer Services, and Trade Show Venue and Exhibition Hall) will become operational at the ITECC; Pell financial aid for WCTE students is anticipated to become available; and seven businesses will begin operating in the ITECC’s Small Business Incubator Program. The physical presence of the Mexican Consulate at the ITECC should ensure a steady stream of students and facilitate expanding the programs.

Visiting the site, one could only be impressed with the new incubation facilities, the worker-training activities that are closely tied to community work-force needs, and the inclusion of the Mexican Consulate in this new facility. Such a collection of capacities and functions will allow UTB/TSC to create an outstanding economic development service for Brownsville/Cameron County. It also will position the University—through potential

¹² Source: *Key Indicators of Progress of Workforce Training and Continuing Education (WTCE) Program: FY1999-2003*, University of Texas-Brownsville/Texas Southmost College, 2003. Information provided in a briefing to WAG on December 2, 2003 by Tony Zavaleta, vice president for external affairs.

partnerships and cross-border collaborations with other U.S. universities, governments, and the private sector—to become a leading factor in creating new jobs and expertise throughout South Texas.

The successful development of ITECC, however, depends on faculty becoming more involved. The vice president for external affairs (Antonio Zavaleta) and the WCTE dean (James Holt) also recognize that ITECC's long-term success depends heavily upon the business community, and they envision having an external advisory board of business owners in place during FY04. While the involvement of the business community in planning and developing the ITECC is essential, so too is that of the UTB/TSC faculty, particularly faculty in the School of Business. The university should consider establishing an internal steering/advisory committee that includes UTB/TSC faculty to help guide the development of the ITECC's academic programs.

Without such faculty involvement (to date, this appears to have been minimal), the ITECC is destined to become a separate training center with no significant academic ties to the main campus. Such an outcome will be accelerated by the planned move of the automotive and refrigeration programs from the main campus to the ITECC; by the failure to develop articulation and maximize credit transferability between the ITECC's certificate programs and the associate and bachelor's degree programs on the main campus (the bachelor of applied technology program notwithstanding); and by the absence of academic course offerings at the ITECC. Instead, we envision new or strengthened linkages in areas such as criminal justice, communications, early childhood education, engineering technology, and business, among others.

The creation of a seamless pathway between certificate programs and associate degree programs—as well as from associate degree programs to bachelor's degree programs—requires faculty leadership and buy-in. Encouragement from UTB/TSC faculty and the presence of upper-level students are essential to creating a climate that inspires certificate and associate degree students to pursue and complete bachelor's degree programs. It is essential that these activities be appropriately coupled with the academic activities of the university and be nurtured with an organizational structure appropriate to encouraging these linkages to grow and expand.

SCHOOL OF BUSINESS

The School of Business has 35 faculty, including adjunct faculty and a visiting lecturer. Its business technology program has about 400 majors. Few faculty in the school are involved in research; most appear to focus on their teaching responsibilities. The primary concern of the faculty with whom we met was acquiring Association to Advance Collegiate Schools of Business (AACSB) accreditation. Other concerns centered on visa problems, heavy teaching loads, and inadequate travel funds which are limited to approximately \$250 per faculty member per year.

We asked about the ITECC and found that faculty in business believe it provides needed classroom space for the school. Yet they did not express a need to become more involved in the academic programs offered on the ITECC. Furthermore, the faculty did not view ITECC students (or associate degree students for that matter) as potential baccalaureate business degree students. Increased faculty involvement in the programs at ITECC might change this perception.

Based on these discussions, we are concerned that associate degree students in business lose 12 of the 36 hours they have earned when they transfer to the school's four-year degree

program.¹³ The school's faculty should review and determine the most effective means to address this deterrent to student advancement.

As with a number of other academic programs, the school may have opportunities to collaborate with UTPA's strong program in international business. Both institutions could well bring strong ties with Mexican universities and businesses to bear and provide a strong South Texas international business program which would benefit the institutions, the state of Texas, and the business community.

COLLEGE OF LIBERAL ARTS

A major issue facing the college is getting additional new faculty. Attracting faculty to the institution has been particularly difficult. The faculty would like to add master's programs in public policy and management, behavioral sciences, and juvenile justice, among other areas. However, the college has been unable to fill existing vacancies in public policy and in criminal justice. Faculty recruitment problems and the faculty's lack of significant involvement in research work against the addition of master's degree programs. Involving the community leadership more in recruitment could be productive. We are also aware of the successes American universities have had recruiting Canadian faculty who face mandatory retirement in Canada.

There seems to be a heavy reliance on a large number of part-time faculty in the Criminal Justice Department, which has 800 majors. The four full-time faculty members in the department teach five classes (three preparations) with 30 students on average in each class. On a more positive note, we learned that the transfer from the associate's degree program to the bachelor's degree program in criminal justice was fairly smooth since the associate's degree program only has two technical courses; the rest are transferable.

DEPARTMENT OF ENGINEERING TECHNOLOGY IN THE COLLEGE OF SCIENCE, MATHEMATICS, AND TECHNOLOGY

The baccalaureate degree program started in 1997 as a spin-off from the program offered by UTPA. The program enrolls almost 90 undergraduate students and awards half a dozen or so degrees per year. The faculty are not pleased that UTB/TSC is not authorized to duplicate or extend the engineering major to the UTB/TSC campus. They shared with us their concern about the debate among the UTB faculty over the degree program's legitimacy and scope. Further, faculty feel employers in the region consider the engineering technology baccalaureate degree inferior to an engineering degree, thereby limiting the employability of their graduates. Faculty, however, do not have any issue with the name of the associate degree program in engineering technology.

Other Issues to Be Addressed

OUTREACH

The Office of the Vice President for Student Affairs has been particularly effective in securing external support for a range of educational outreach activities that offer academic and personal development support for students at the middle and high school levels. If aligned properly, these programs, which include a GEARUP grant and several TRIO¹⁴ program awards, along with a number of science-oriented programs, could become a major recruitment mechanism

¹³ Students are able to pursue either the Bachelor of Applied Arts and Sciences or the Bachelor of Applied Technology.

for the institution; lead to better-prepared entering students; and develop more students interested in pursuing careers in science fields in which Mexican Americans are significantly underrepresented.

MEXICAN AMERICAN FACULTY

While UTB/TSC reportedly has a significant number of Hispanic faculty, it does not have a large number of Mexican American faculty. Given the small number of such faculty nationwide, this situation is somewhat understandable. However, the University must take some responsibility for its failure to encourage and mentor a continuous flow of its Mexican American students into doctoral degree programs. We were repeatedly told that UTB/TSC students do not want to leave the Valley because of family ties/responsibilities. Still, there must be a number of talented students among the institution's 10,000-student body who could be supported financially with stipends through a doctoral program. Such support could come with the understanding that they might initially join the UTB/TSC faculty following completion of their degree program.

Such Mexican American faculty members are needed as role models and mentors. The pathways they follow can serve as guideposts for undergraduates. This leadership in turn would help address the institution's poor six-year graduation rate (discussed below) of first-time, full-time bachelor's degree students. We therefore strongly recommend that the UT System address the problem of UTB/TSC students with talent and interest in the sciences not pursuing Ph.D.s in those fields. Doing so is in the state of Texas' and UTB/TSC's short- and long-term interests. This challenge is also a national issue that, if addressed, would bring substantial credit and recognition to the institution.

SIX-YEAR GRADUATION RATE

Information provided by the institution shows that the six-year graduation rate for first-time, full-time bachelor's degree students is a mere eight percent. By contrast, the rate at UTPA exceeds 20 percent—and UTPA has a comparable student body (open admission, predominantly Hispanic, predominantly female, primarily commuting, and with significant family obligations as well as developmental education needs). This poor record demands strong measures to improve student retention and persistence through graduation. The institution needs to focus substantial attention on significantly improving this track record. It is unfair to students and their families to continue to add programs when the probability of students completing these programs is so low.

The following table provides comparative data, including six-year graduation rates, across the four institutions that this WAG team visited.

¹⁴ TRIO refers to a series of programs funded under Title IV of the Higher Education Act of 1965 to help low-income Americans enter college, graduate and move on to participate more fully in America's economic and social life.

Table 3. Selected Statistics, UT-Tyler, UTPA, UTB/TSC, and UTPB¹⁵

	UT-Tyler	UT-Pan American	UT-Brownsville /TSC	UT-Permian Basin
Median Income per Household, 1999	\$37,148	\$24,863	\$26,155	\$31,152
Student Headcount, Spring 2003	4,261	14,174	10,005	2,663
# of Degree Programs offered (9/23/03) (A=Assoc. B= Bach. M=Master's D=Doct.)	77 (41B, 36M)	96 (1A, 51B, 42M, 2D)	66 (16A, 34B, 16M)	47 (29B, 18M)
#(%) of Minority Students (2002)	727 (17%)	12,914 (90%)	9,370 (94%)	1,021 (38%)
% Students needing Developmental Education, 2000-01	1.6%	70%	52%	8.2%
# degrees conferred FY 2002 (C= Certificate)	805 (684B, 121M)	2,037 (1,597B, 430M)	1,387 (178C, 443A, 618B, 148M)	485 (417B, 68M)
Six-year graduation Rate (first-time, full-time bachelor's)	n/a	22.9%	8.0%	24.0%
Faculty 2001 (Full-time, Part-time)	(279, 95)	(571, 108)	(303, 242)	(139, 40)
Full-time faculty: student ratio spring 2003	1:14	1:21	1:29	1:15
State Appropriations per student, fall 2002	\$4,954	\$4,006	\$3,122	\$6,092

Note: The two smaller institutions in this report (UT-Tyler and UT-Permian Basin) have state appropriations per FTE substantially higher than do UT-Brownsville/TSC and UT-Pan American. The UT System may wish to review and access this funding pattern.

FACULTY HIRING

As part of this strategic hiring activity, hiring within academic departments must be both encouraged and monitored to ensure that faculty about to receive offers of employment have the appropriate qualifications. The University, through the provost and working closely with the faculty and deans, should jointly determine the skills generally needed in all of the academic areas. Any hiring, regardless of how badly needed, should be done on the basis of teaching need and research opportunities and follow a strategic vision that focuses on needs and facilities, growth and directions, and new opportunities. Such a strategy could become part of a university master plan. The strategic plan would also benefit from the assistance of or review by outside experts. Filling numerous positions without such a master plan could well lead to inappropriate hires and backward rather than forward motion.

¹⁵ Source: UTB/TSC - Peer Data for Accountability. Materials provided by UTB/TSC for site visit.

We must stress that the following points also apply to the other three emerging institutions we reviewed, as we will mention in far briefer format in the appropriate sections:

- Faculty hiring decisions should be examined periodically after faculty are in place to determine if the hiring has been effective or if adjustments should be made. Such outside review could be established for a finite time and extended, subject to review by the System and the institutions.
- Because of the key roles deans play in such decisions, and because of the desire to constantly improve the quality of faculty hires, the UT System and the university may wish to require that all hiring of deans include national searches as well as pre-decisional qualifications reviews of finalists. Such steps would greatly improve the likelihood of strong hires.
- During our visit, we heard several references to the difficulty of attracting faculty to Brownsville. Establishing teaching residencies in certain disciplines might temporarily lessen the teaching burden on faculty until more lasting solutions can be put into place.
- The University should pursue novel approaches to recruitment, including approaching faculty near retirement at Canadian universities, many of whom face mandatory retirement, in order to lure them to the warmer climate of South Texas.

CAMPUS SPACE AND BUILDINGS

UTB/TSC's physical plant has greatly expanded with the acquisition of the 600,000 square-foot Amigoland Mall, which has become the ITECC discussed above. In addition, a former Holiday Inn has been acquired and renovated for student housing; a second, similar purchase may also be possible. The institution's School of Health Sciences is expected to benefit significantly from UTHSC-Houston's RAHC, which opened in January 2002. The RAHC is built on land donated by TSC.

As noted earlier, TSC owns all but two buildings on the campus. The financing for either constructing or renovating these buildings has come largely through bonds floated by the community college or the State of Texas. The local government's share of buildings and land since the inception of the partnership has produced or will produce an additional 335 acres for UTB/TSC, along with more than \$55 million. The State of Texas has provided or is expected to provide approximately \$62 million in new construction funding.

Recent construction activities include the Life and Health Sciences Building (2001), the Student Union (2002), RAHC with funding from UTHSC-Houston (2002), classrooms at the ITECC (2002), additional campus parking (2003), and The Village, which is campus housing (2003). Future construction projects include the Cueto Building (2004) and the Education and Business Complex (2005).

Even with its proposed space, the UTB/TSC will face challenges arising from class size and the limited availability of research space. Further, fiscal constraints will limit the institution's ability to address these concerns. As part of its strategic planning, we encourage the University's leadership to carefully review the issue of class size. It is not uncommon for a community college to struggle to maintain smaller class sizes as its student population surges, and it transitions to becoming a university. The need for research space also will present difficulties

during this transition. In addition, faculty must have adequate office space, and the University leadership should give prompt attention to remedying problems in this area.¹⁶

ARTICULATION ISSUES

The poor articulation between lower and upper division courses at UTB-TSC likely drags down the poor six-year graduation rate discussed earlier. As the enrollment crush arrives, and the county's population increases, the University will only have to expand courses at the lower and upper levels. Yet, the merging of UTB and TSC may offer opportunities to meet the growing demand. As we have seen, this UTB/TSC partnership is a novel concept. It could significantly boost the pool of Hispanic and other students in higher education. But it must make it possible for community college students to transfer to upper-level programs with minimal loss of course credit, regardless of the associate degree acquired. We therefore recommend that the University immediately review current UTB/TSC policies affecting course transferability and correct any problems expeditiously. In the review, the university should consider whether

- Issuing certificates encourages or slows students' pace of graduation.
- Certain incentives will induce students to accelerate their academic progress.
- Consider the establishment of a position of student ombudsman or dean of the undergraduate college to work with students on the issues that affect student welfare. This position could help address matriculation concerns and even the low baccalaureate graduation rates.

For guidance in this process, the University should look at other community college/university transfer models, such as the ones in place at the Maricopa Community Colleges/Arizona State University and the transfer agreement between the Arizona community colleges and universities. A third model worthy of review is the Western Community College and Northern Arizona University (NAU) model, in which NAU shares facilities with the community college and provides a seamless transition to four-year programs.

Another strategy that has had some success is the Achieving a College Education (ACE) program in place at several community colleges that have strong articulation agreements with nearby universities. The Maricopa Community College has one such program that enables high-risk students to move from the last two years of high school to the community college and on to the university while earning college credit at the same time. This arrangement has successfully encouraged students to earn their high school diplomas while taking college classes during the summer. Such a program might fit well into the UTB/TSC partnership.

OPEN ADMISSIONS OR QUALITY CONSIDERATIONS

The challenges that the growth of the Hispanic population will bring Texas have been mentioned previously and are widely known. But this growing population also faces a serious challenge because it has limited access to flagship universities. The problems it faces may be exacerbated if institutions that serve a large number of minorities do not provide a high-quality education. The UT institutions in these rapidly growing regions of the state should either become the primary institutions for higher education serving these students and receive appropriate state support for their faculty and facilities, or seriously consider limiting their enrollments to avoid

¹⁶ Information on physical plant provided in briefing to WAG team by vice president for administration and partnership affairs and others on UTB/TSC facilities plans, December 2, 2003.

over-stretching their thin resources. The former is by far the preferable option, since the latter approach would likely leave even more Texas citizens without the benefits of such education and produce tremendous negative social and economic consequences. Still, innovative means to generate funding will not be painless, particularly with constrained state spending. At a minimum, however, the university could justifiably consider new capital funding mechanisms.

The UT System also might consider developing and helping to identify special funding opportunities for regional capacity-building collaborative sites in such rapidly expanding regions as South Texas. Selected universities with these sites could then provide continuous capacity-building support for K-12 teachers, particularly in teacher training and curricular development; technological support and program development for sharing courses; and instructional materials and expertise to expand course offerings. They could also facilitate collaborative research activities that capitalize on mutual strengths and expand undergraduate research opportunities.

Since the universities of South Texas and elsewhere can serve as a pipeline for Hispanic students to complete their undergraduate education at institutions near their homes, they could also develop ties with other institutions to further educate these students in an array of disciplines, especially in mathematics, the sciences, and engineering. Such an effort would greatly benefit the region. In addition, the WAG team is aware that the Texas grant available to selected students at the university level has been under-subscribed in recent years. A strong effort to encourage more students to apply for this grant would allow additional resources to flow into the university without hurting its neediest students.

OTHER POTENTIAL OPPORTUNITIES

We have mentioned the urgent need for the University to increase and enhance its collaborations with academic health centers in this region. But the University also has significant opportunities to tie these centers with campus-based faculty to develop important programs in research, training, homeland security, and public health for this region. It also has a valuable opportunity to build on the foundation of excellence in gravitational wave physics and biology. Other opportunities for research and education include the following:

- Taking advantage of its proximity to the U.S.-Mexican border, particularly since substantial industrial activities exist on both sides of that border.
- Developing innovative ways of responding to the increasing pressures to produce certified teachers to handle the surging South Texas student population.
- Increasing the quality of teaching and materials in such areas as K-12 education to decrease the number of college students needing remedial courses.
- Employing distance-learning technologies at the younger grade levels as well as for worker-training, undergraduates, and others.
- Pursuing both research and career opportunities in biotechnology, biomedicine, nursing, medical technologies, and other public health areas.
- Working—through faculty in business, engineering, and other areas—with manufacturing industries on both sides of the border in technology development, worker training, and research collaborations.
- Addressing environmental concerns about water, food, tourism, and pollution that require expertise and research.

Can UTB/TSC Become a Research University by 2010?

A university's ability to attract \$100 million per year in extramural funding has become the selected indicator of whether an institution is a Tier 1 research university. It seems impossible that within ten years UTB/TSC could reach this mark. However, UTB/TSC may be able to approach extramural federal research funding of \$10-12 million per year in ten years. This achievement would amount to a three- to four-fold increase over the ten years. Given the budget and population challenges that UTB/TSC faces, reaching this new level of average per-year funding would be a remarkable accomplishment.

Judgments about attaining this goal require a realistic consideration of the UTB/TSC faculty culture. The faculty at UTB/TSC is composed of two groups: (1) the more senior, often tenured faculty, hired before the partnership and under a totally different mission; and (2) a more junior faculty group hired after the partnership and recruited to teach at UTB as well as to engage in some research and creative activities as part of their responsibilities.

The faculty situation at UTB/TSC differs from many other UT campuses we visited. At UTB/TSC, a community college faculty and a university faculty are merging. In the liberal arts and sciences, efforts have been made to phase out community college faculty who could not make the transition into research. In our judgment, UTB/TSC should make faculty transition and subsequent hiring decisions as part of a larger long-term strategy that takes into account the resources, facilities, and type and number of faculty needed to achieve institutional goals as well as to serve the projected quality and size of the student body. The University has begun this type of strategic process with the creation of The Commission on the Future. We commend this effort but encourage continued and renewed strategic planning in light of our report and as discussed above.

How Might UTB/TSC Look in Five Years?

If we were to look ahead to 2010, we might see that the board of UTB/TSC, with support from the UT Board of Regents and the System office, had determined that UTB/TSC had not limited enrollments and continued to offer strong educational opportunities for increasing numbers of South Texas students. In this scenario, though the student population in 2010 would have surpassed the 20,000-student level, activities such as GEARUP, TRIO, and other K-12 outreach programs in and around Cameron County would have reduced the percentage of incoming students requiring remedial courses to an astounding 11 percent in 2010, compared to 52 percent in 2001 and 96 percent in 1995. Considerable credit would go to the UTB/TSC School of Education, which would have increased its collaborative programs in those schools. The School of Education would have increased its ExCET pass rate for graduating teachers from 92 percent in 2002 to a UT System-high of 99 percent.

As we continue this look into the future, we find incoming UTB/TSC students disproportionately deciding to pursue academic programs in mathematics, science, and engineering. The UTB/TSC science and engineering faculty's productive outreach to the local schools has worked, raising interest in these fields and improving the ability of incoming freshmen to succeed in their initial science and engineering courses. As a result, strong master's degree programs have emerged in mathematics, biology, physics, computer science, and several areas of engineering. Good partnerships link UTB/TSC and the Regional Academic Health Center; they include faculty in such disparate areas as structural and computational biology, computer science, physics, bio- and mechanical engineering (formerly engineering technology), nursing, social work, psychology, and a new program in public health. The master's programs in

a number of areas, including the sciences as well as the Ph.D. program in physics, serve excellent graduate students actively sought throughout Texas and beyond. The physics program has continued to gain in national and international stature. For the second consecutive year, the UTB/TSC graduate program has been ranked in the top five nationally in producing Hispanic master's degree graduates in science and engineering areas.

By 2010, we see the number of degree offerings up 140 percent since 2000, a result of the commitment of the UT System and its Regents to provide several of the smaller universities in the system with capital-construction assistance funds to handle the surging pool of college-age students. The expanded degree offerings have stimulated more students to declare majors at earlier stages, according to a report by the recently created position of dean of the undergraduate college. The quality of entering students also is improving, due in part to stronger admission requirements instituted by UTB/TSC and several of the other rapidly growing universities in South Texas. Yet acceptance rates are still high because improved elementary, middle, and high school preparation—provided by teachers who in many cases are UTB/TSC graduates—has improved the quality of entering students.

Continuing our look ahead, we find a dramatic increase in students living on-campus. Thanks to the university's acquisition and construction/remodeling of several facilities on the adjacent peninsular properties, new resident facilities for undergraduates (and a small graduate student living center) have pushed this on-campus population upwards of 2500 students. Plans are underway for further renovation of properties recently acquired in the downtown Brownsville area for both academic and residential purposes.

In addition, the ITECC has become a showcase on how to link university interests with community economic development and job creation; it has become a magnet for industry and private sector representatives interested in doing business in Mexico via the Southwestern U.S. The size of the Mexican Consul's staff has mushroomed to handle the increased activity. Along with UTPA, UTB/TSC has become a major academic focal point on the border for Mexican students seeking a U.S. higher education. Small businesses along the U.S. border are spinning out of the incubator located in ITECC, which is providing substantial economic growth for the region, partly through ITECC's active and growing partnership with the Brownsville Economic Development Council—which is housed in the ITECC. New training initiatives include major statewide criminal justice training for new officers and the retraining of officers around the state via distance-learning technologies. The local community, in one of several recent displays of support, has passed its third bond issue for construction at UTB/TSC. The buildings resulting from or under construction due to earlier bond issues are beginning to relieve the need for larger classrooms and for additional research space in the sciences and in other disciplines. The research activities are expanding thanks to the additional faculty hires which have tracked the priorities of the recently updated University Strategic Plan. These faculty members have been hired to teach the numerous new courses and majors that serve the rising number of UTB/TSC students. More UTB/TSC graduates also take advantage of graduate education offered by universities that increasingly come to Brownsville to recruit quality undergraduates. Many of these students remain committed to returning to South Texas when they conclude their graduate degrees. UTB/TSC, the South Texas region, and Texas have benefited greatly from their return.

THE UNIVERSITY OF TEXAS-PAN AMERICAN (UTPA)

Overview and Mission

The University of Texas-Pan American in Edinburg, Texas has evolved from a community college (Edinburg College), which was founded in 1927, into a comprehensive university that offers bachelor's and master's degrees in several fields and doctoral degrees in two areas (a Ph.D. program in business administration with an emphasis in international business and an Ed.D. degree in educational leadership). It also offers a joint pharmacy degree with the University of Texas-Austin. UTPA's stated goal is to become a doctoral/research institution by 2010.

UTPA's educational program has evolved from emphasizing teacher training (when the regional economy was based heavily on agriculture) to include business (as the region's economy diversified) and, most recently, the health sciences and science and engineering (because of the population growth and greater economic diversification). In addition, UTPA has 23 centers with a combined budget of approximately \$5 million and a total staff of about 100 individuals.

The university's vision statement is the following:

The University of Texas-Pan American will be a first-class doctoral university and the educational leader for South Texas, addressing the expanding needs of a multi-cultural, metropolitan area by offering a broad spectrum of undergraduate, graduate, and professional degree programs, by maximizing access opportunities for qualified applicants, and by pursuing research and providing professional services that emphasize the economic development, educational advancement, health improvement, environmental protection, and cultural confluence of the international borderland.¹⁷

STUDENT DEMOGRAPHICS

The UTPA student population is predominantly Hispanic and female, while the faculty is predominantly white and male. The majority of its students come from Hildago and Starr Counties, and it is largely a commuter's institution. The Texas Higher Education Coordinating Board projects that enrollment will grow from the 14,392 in the fall 2002 to 19,032 by the fall of 2010 and to more than 26,000 by 2015. Based on its enrollment, UTPA is the tenth largest public university in Texas and fifth largest in the UT System. In fall 2002, 315 of its 460 faculty members held tenure/tenure track positions.¹⁸

In fall 2002, approximately 87 percent (12,510) of the 14,392-member student body were undergraduate students and 13 percent (1,882) were graduate students.

The University's educational program is organized into the six colleges listed in the table below. The table also shows fall 2002 enrollment distribution across the colleges.

¹⁷ UTPA 2002 *Institutional Fact Book*, p. 1; and UTPA *Agency Strategic Plan for the 2001-2005 Period*, pp. 17-19.

¹⁸ *Ibid.*, pp. 31-40.

Table 4. UTPA Enrollment by College, Fall 2002¹⁹

College	Undergraduate*	Graduate*
Arts and Humanities	2,910 (23%)	354 (19%)
Business Administration	2,090 (17%)	207 (11%)
Education	2,069 (17%)	829 (44%)
Health Sciences and Human Services	1,698 (14%)	196 (10%)
Science and Engineering	2,378 (19%)	174 (9%)
Social and Behavioral Sciences	1,365 (11%)	122 (6%)
Total	12,510	1,882

* Due to rounding, percentages do not total 100.

The six-year graduation rate for first-time, full time entering students increased from 21.6 percent in academic year 1999 to 24.6 percent in academic year 2002. Approximately 87 percent of the total student body in fall 2002 received some type of financial assistance.²⁰

AN INSTITUTION IN TRANSITION

In many instances, universities with humble beginnings have become strong research universities in relatively short periods. The traditional growth of teaching colleges into research institutions is well documented. Such transformations have sometimes gone hand-in-hand with regional economic growth.

UTPA began less than a decade ago in much the same way as a number of other state universities across the country. But UTPA's profile differs significantly from many of these universities. It not only operates in a community with one of the lowest per-capita incomes in Texas and the U.S., and its predominantly Hispanic students reflect that economic environment. UTB/TSC will continue to play a significant role with this population which is also a key one to the State of Texas, as it is projected that by 2005, Hispanics will represent almost a third of the Texas population and over 90 percent of the Valley's population.²¹

UTPA is also part of a community whose economy is highly vulnerable to fluctuation, and it is in a region tied to the North American Free Trade Agreement (NAFTA) and the *maquiladora* industry. For the foreseeable future, immigration, health, educational, environmental, economic, and other U.S.-Mexico border issues have and will continue to challenge these border communities in substantial and dramatic ways.

The campus is situated in the Rio Grande Valley, one of the country's fastest-growing regions. The Valley's population is expected to continue increasing rapidly due to strong economic development, higher-than-average birth rates, and continued immigration to and within the state.

¹⁹ Ibid., pp. 80-88.

²⁰ Ibid., p. 49.

²¹ Gerald D. Brazier and David Gibson, *Assets and Challenges for Accelerated Technology-Based Growth in Hidalgo County: A Knowledge-Based Benchmarking*, Cross-Border Institute for Regional Development, UT-Austin (2001), pp. 16-19.

The expanding population of college-bound students in a community experiencing great economic change will seriously challenge the potential and resources of UTPA specifically and the UT System in general. Ahead waits not only a large, youthful population likely to become first-generation college students, but also college students whose parents may not be proficient in English or have not completed elementary school, or both. Universities that will serve these students—institutions like UTPA—occupy a unique place in our educational landscape.

UNIVERSITY LEADERSHIP TEAM

We would be remiss if we did not single out President Miguel A. Nevarez for his many years of outstanding leadership of this institution. Since he assumed the presidency in 1981, he has had a clear and unmistakable role in the growth and success of UTPA. Over a long and impressive term of leadership, he has provided the direction for the University and has been uniquely responsible for determining and building its strong foundation for the future. The new president will take the reins of UTPA at an important time in its history, making this upcoming appointment critical to the future of both the institution and the region.

Current Research and Educational Strengths and New Opportunities

We were asked whether UTPA could, within a decade, be securing \$100 million per year in extramural funding or research expenditures. Our review of UTPA convinces us that doing so is highly unlikely in the foreseeable future. With some significant changes in direction and priorities, however, by the end of the decade or shortly thereafter, UTPA might be able to generate approximately \$20 million annually in extramural research support. (The current UTPA goal is to reach this \$20 million goal within a 10-year period.) We have also concluded that focusing UTPA solely on becoming more research intensive is likely to deter its educational role within its community.

The selection of a new president in the next several months will be a particularly critical decision for the direction of this University and indeed for South Texas, which needs the best comprehensive university possible. This institution plays a central role in the education of South Texans and that strong role must continue.

Already, many of the directions President Nevarez and others have initiated have begun changing UTPA from a teaching institution into one that pursues both research and public service. Some changes in the short term would help continue—if not accelerate—this evolutionary cultural change. Short-term steps that it must consider include new faculty hiring, start-up packages to accompany the hiring, identifying and prioritizing areas for acquiring new faculty in key areas, solving space limitations, and confronting the heavy teaching loads created by surging student populations.

LINGUISTICS AND COMPOSITION

The WAG team finds research and creative strengths at the interface of communications, English, linguistics, history, modern languages, and literature. Teaching demands will continue to call for more faculty lines in these areas, and market forces will continue to produce top scholars as applicants. An interdisciplinary program in border studies (including women's studies) with appropriate areas of specialization would have substantial impact, including the development of a high-quality Ph.D. program in linguistics and composition that incorporates the existing strengths in bilingual talents. The depth of talent already at UTPA in these areas and the

faculty talent available in the national marketplace could make such a Ph.D. highly advantageous to the institution and the state.

More than that, UTPA's location, its cultural heritage, and its impressive student body, along with its partnerships with Mexican universities and businesses, give it a good chance of developing a considerable reputation in these fields. The likelihood of adding new faculty in these areas also suggests the possibility and desirability of hiring Hispanic and Mexican-Americans in these fields of study. The broad areas of cultural/border studies, including bilingual composition, communications, linguistics, and history areas, would need as many as five new faculty in several disciplines to fully realize the opportunities in these areas. The goal would be to hire the best candidates conducting research in border and U.S.-Latino issues. Such hiring could substantially boost the program, existing and new courses, and collaborative offerings.

The Dean of arts and humanities should be asked to assess these capacities and consider making a major push in this interdisciplinary area.

It is also worth mentioning that because these academic areas do not tend to generate substantial revenues, particularly from the federal sector, they also tend not to demand the salaries of some fields, such as engineering, the sciences and mathematics, and business.

ENGINEERING AND APPLIED MATHEMATICS

We see research strengths at the interface of engineering and applied mathematics. This is an important opportunity, as advanced degrees in such areas would strengthen UTPA's research activities with U.S. and Mexican companies on the border and would enhance the potential for additional external funding. Specifically, a Ph.D. in computational science, with a major in either engineering or applied mathematics, is possible. The reasons include the following:

- The engineering faculty seems extremely supportive and knowledgeable of what is required to carry out such a program.
- Active senior faculty can provide leadership that seems sufficient for continued progress, and recent hires in applied mathematics have federally-funded grants.
- The plan to hire additional young faculty is likely to help create a core of active young research faculty.
- Junior faculty in mechanical engineering and manufacturing engineering have created a critical mass of computational engineers (there is clearly an opportunity for a Ph.D. in these areas).
- The support of the senior engineering leadership provides a strong nucleus of active research faculty ready to collaborate in interdisciplinary programs that take advantage of all of UTPA's strengths in modeling and computational science.
- The recently hired dean of science and engineering seems to possess the experience and expertise to move this mathematics/engineering group in the right direction.

MATHEMATICS AND SCIENCE EDUCATION

Research strengths exist at the interface of science, mathematics, and education. Recent hires in applied mathematics, education, and physics, in combination with extraordinary senior leadership in mathematics education and applied mathematics, form a core capable of developing

Ph.D.s in mathematics and science education and/or in curriculum and instruction. The development of Ph.D. programs in these areas should be high priorities because of the faculty's strengths and the need for trained personnel in these crucial areas both within the state and the nation. The success of this effort depends on the department's ability to recruit additional mathematics and mathematics education faculty. The need for statistical expertise is also evident, but outstanding faculty could certainly be attracted to this program if planning were underway for the doctoral degree.

To develop these doctoral programs, the department would need to hire additional mathematics education faculty (possibly as many as five), science education faculty (up to three), and curriculum and instruction faculty (up to two). In addition, the department should hire faculty with strong quantitative (certifiable) statistical training (experimental design and statistical analysis experts). We recommend that the department expand the mathematics department into a mathematics and statistics department to assist in creating this type of expertise.

COMPUTER SCIENCES AND ENGINEERING

While it seems plausible to develop a Ph.D. in interdisciplinary programs at the interface of current programs in business, management, and computer science, our group did not find this possibility a high priority on campus. With serious discussions underway about a Ph.D. at the interface of computer science, mechanical engineering, and manufacturing engineering, our team suggests that electrical engineering should be added to these discussions. There seems to be sufficient leadership to explore such a program, and doing so should be a high priority. In addition, the various departments' relevant master's degree programs seem to have available a good pool of graduate students, the most viable doctoral students for such a new program. (We are pleased to hear that the Coordinating Board approved the planning for a new Ph.D. program in manufacturing engineering at their January 29, 2004 meeting.)

To create such programs, computational and engineering areas would need as many as five faculty in mathematics (computational biology, numerical analysis, computational statistics, stochastic processes, etc.), and another five in the computation-intensive fields of engineering (fluids, operations research and optimization, electrical engineering). Also, computational science programs would require professional computer support, graduate teaching assistants, reasonable teaching loads, competitive faculty salaries, and reasonable start-up funds for faculty.

PHYSICAL AND BIOLOGICAL SCIENCES WITH HEALTH SCIENCES

We found research strengths at the interface of the physical and biological sciences and the health sciences, where a joint professional degree program in pharmacy with UT-Austin exists. Relevant to this area, we met some exciting faculty from the rehabilitation and social work programs. What seemed to be lacking was a group initiative (though an initial discussion or report on the development of a Ph.D. program has been submitted to the university administration). The health and human services group requires strengthening, as it should be a candidate for involvement in any new research or Ph.D. effort. Areas such as rehabilitation services, aging, and nutrition have research strengths; nursing needs to be included and could have potential to add breadth to this area. To ensure the long-term development of a Ph.D. program, the university should implement master's programs and create interdisciplinary degrees at the master's level. Our view is that many future Ph.D. programs would benefit as joint initiatives with either other UT universities or UT health science center programs. For example, construction on the university's campus of the aforementioned RAHC is underway. With funding

construction in hand, funding is now required to plan and implement a viable research and teaching effort.

The creation of the RAHC substantially increases the potential in health and biomedical research, as well as social dynamics and health disparities research. The university could also attract federal funding in this area. According to UTPA faculty and administration sources, the RAHC is focusing its research program on such areas as diabetes, emerging infections, nutrition, and environmental health. It also has plans to include epidemiology/biometrics and research projects that will use laboratory animal resources. The RAHC could also benefit from the existing partnership between UTPA and Baylor University in pre-medical education, the joint pharmacy program, and the partnership on admission to Baylor's medical school, as well as the pre-dental partnership with the University of Houston and UTPA.

The collaboration between the RAHC and UTPA is one of the best potential win-win arrangements for both entities we can envision. As collaborations take considerable involvement and effort to become successful and productive, it is incumbent upon the leadership of both organizations to invest the required efforts to ensure success.

As noted earlier about the education area of UTB/TSC, the large number of Hispanic students graduating with bachelor's degrees in the sciences could be a unique UTPA advantage, if it channeled these students into graduate programs at either UTPA or other institutions. Success could have national implications for producing Hispanic Ph.D.s in critical science areas.

There would appear to be opportunities to strengthen coordination and planning with UTHSC-San Antonio officials; although the dean of science and engineering and the Provost mentioned several meetings that had taken place, more concrete progress could be made to achieve this goal. There is discussion among faculty about possibilities, but little involvement in setting directions for such a significant addition to the campus. We were unable to ascertain the RAHC's role in a UTPA research agenda, as we did not have the opportunity to meet with RAHC officials on our visit. Because of the multi-institutional nature of this important issue, we recommend that the institutions and the system office's new executive vice chancellor for health affairs make this collaboration a top priority.

BIOLOGY, PHYSICS, AND CHEMISTRY

We found research strengths at the interface of biology, physics, and chemistry, where a Ph.D. in environmental/ecological sciences may be possible. We found several new members of the faculty—some with strong postdoctoral experience—carrying out research at the interface of ecology, environmental science, and the plant sciences (one had two funded proposals early in his research career). We also found evidence in this group of external funding to support undergraduate research. The environmental area here could benefit from expanded efforts that could enhance use of a special South Texas resource, the Coastal Studies Laboratory. This laboratory, established in 1973 as a marine biology laboratory in Isla Blanca Park on South Padre Island, could become a valuable research and educational resource for both graduate and undergraduate students interested in marine and ecological phenomena. Since the university offers only a master's degree in biological sciences, it would need to strengthen the other science areas first for such interdisciplinary efforts to succeed.

Other Issues to Be Addressed

NEW STRATEGIC PLANNING

Opportunities will exist as long as a new strategic plan developed, reviewed, and executed over the coming years makes the growth of UTPA's research portfolio in selected areas a high priority. Such a plan would enhance the likelihood of adding new faculty interested and committed to research. Yet, the current market, while enabling institutions like UTPA to attract some top academic candidates, could remain constrained for top faculty unless the University establishes more favorable teaching loads, policies, and salaries. Faculty do recognize that targeted areas for research growth will not prosper unless they have the tools to compete: reasonable teaching loads, quality peers, adequate resources and space, and competitive graduate students. There is no point in creating and supporting Ph.D. programs—the cornerstone of a research university—unless institutions first establish an environment in which programs can develop in an appropriate fashion, with competitive tools and policies in place. Legislatively earmarked activities can assist in developing infrastructure in the short-term, but no major research activity can thrive in the longer term without the capacity and talent to compete nationally for external funding.

INFRASTRUCTURE

The university should make plans to provide appropriate levels of research infrastructure and space for incoming faculty. It is not clear that enough laboratory space and reasonable start-up funding exists for new faculty. Competitive research programs linking biology, chemistry, and physics cannot be developed using undergraduate teaching laboratories.

We could not determine if the university had adequate computational infrastructure support for areas of opportunity that include biological sciences, biomedical/health, math/science education, and engineering, to name a few. Several areas need statisticians and bio-statisticians. A computational support group that serves the science, health, education, and business areas of the university could be considered. Computational science cannot be carried out in departments lacking the support of computational resources and computer system managers to handle the demands of researchers with strong computational programs.

DEDICATED AND HARD-WORKING FACULTY

The university's overwhelming strength lies with its current active and research-oriented faculty. A tremendous advantage is that UTPA is recruiting over 45 new faculty positions this year (and within the last few years, that number has been as high as 65 new faculty per year). This pace suggests that the tenure-track and tenure faculty may be growing faster than 12 percent per year. This rapid faculty growth and the importance of using these new hires to continue to change the academic culture at UTPA make it imperative to immediately develop a hiring plan that will help minimize mistakes. Otherwise, attempts to refocus the institution in new directions may be slowed or thwarted by a large percentage of faculty hired with different expectations and capacities. We know the University is aware of this important opportunity and will endeavor to attract faculty and academic leaders who share a strong and common understanding of the research environment and its importance.

Appropriate support packages for new faculty must be a crucial part of any such plan. Many universities institute hiring policies allowing departments with less research experience to add several research faculty from other departments or even external expertise to ensure bringing

in faculty with good research records or promise. With such a strategic hiring plan, UTPA could develop faculty profiles that are more research-oriented than those many current faculty who are oriented primarily to teaching.

Market considerations drive salaries and special arrangements to attract high-quality faculty, and it is quite difficult to hire faculty in areas in demand. If doing so is a priority, appropriate levels of funding must be found. Again, UT institutions should look to faculty in Canadian universities facing mandatory retirements as a potential source of faculty. They should also explore other innovative approaches to acquiring faculty for short-term assignments.

We have also suggested previously that the University explore some sort of post-hiring assessment of faculty hires to determine if the strategy and approaches are proving successful. We reiterate the importance of deans in these hiring decisions. We also reiterate the value of considering unusual procedures in searches for these deans, including mandating national searches as well as external review of finalists' qualifications and vitas, at least until the institution strengthens.

STUDENT POPULATION GROWING, BUT NOT STUDENT RESEARCH

The overwhelming praise that the faculty we interviewed had for the student body was admirable. Most of the faculty we met noted that the opportunity to teach and mentor hard-working, first-generation-in-college, and economically disadvantaged students was critical to their decisions to join UTPA. Faculty seemed genuinely fulfilled by their students' growth and development. The faculty knows and relishes that they are making a difference in the lives of these students. Yet, as student enrollment continues growing at double-digit rates (11 percent this past year), the faculty are becoming weighed down with teaching requirements. The growth is also creating space issues for teaching and research. Space and its financing will continue to be major issues for the new administration and the System, which must be a part of any solution to meet the space demands of the most rapidly-growing institutions.

UTPA has a population of enthusiastic and well-trained students, but undergraduates have only limited opportunities to undertake funded research, and such research is not being carried out in a systematic fashion. But support for research is the key, as most undergraduates have part-time jobs that are essential to their or their family's survival. Undergraduate students also provide an extraordinary pool of potential graduate students for many of UTPA master's degree programs.

RESEARCH CENTERS OF EXCELLENCE AND RESEARCH FACILITIES

Research centers at UTPA are not created in a fashion that is typical at major research universities. That is, at UTPA, centers do not seem to emerge from groups of faculty writing joint proposals for external funding. It must become established procedure that faculty develop initiatives to search for funds and then establish centers around funded research or interdisciplinary graduate programs. If a bottom-up process were utilized, then faculty interests and strengths would drive the direction of research and the establishment of centers. This process should become part of the evolving cultural change on this campus and among its faculty.

LIBRARY

Libraries must increase access to holdings in a variety of ways. This access could include the basic journals faculty require in their disciplines. The University should involve faculty

extensively in reviewing library needs and establishing a process to determine purchasing priorities. Access to journals and many publications at the UT-Austin library is available on-line to the other UT System institutions.

POLICY ON TEACHING LOADS AND SALARIES

The University should institute a policy that makes clear that faculty teaching loads and salaries cannot be the same across all fields. One could envision a research faculty member, for example, with a 2-3 or 3-2 teaching load for professors in mathematics and in the humanities (class size being a factor in writing and language classes). But a 2-2 teaching load for biologists—with the possibility of team taught courses—may be too high.

Faculty involved in research who play leadership roles will need competitive faculty support. They must have teaching loads that are standard in the field, have access to seed money, and have teaching assistants and research assistants with competitive stipends.

In addition, UTPA requires a policy for providing start-up funds in differing but appropriate amounts for all new hires. When developing such a policy, the University should consider reducing teaching loads during the first year for faculty undertaking a research program and consider not requiring committee work from such faculty for two years. Such a policy might also stipulate seed monies and summer research opportunities.

Such issues must be addressed if UTPA expects to successfully implement Ph.D. programs in at least three additional areas and MS programs in several other areas and to build a sound portfolio of extramural funding in the next several years.

GRADUATE STUDENT SUPPORT

No graduate program can succeed without a sufficient number of excellent graduate students. While more sponsored research will eventually allow UTPA departments to fund graduate students competitively, the transition will be slow and difficult. Still, UTPA's support for graduate students is deplorably low. For example, it offers few graduate student stipends, and those it does offer are worth about \$7,000 a year, which is far from competitive; many graduate students receive stipends of approximately \$15,000 per academic year. Health insurance would be an incredible benefit for these students. The University might also consider offering some summer fellowships with appropriate stipends to the top research-oriented graduate students.

Opportunities for Collaboration

The WAG team found many examples of productive and innovative partnerships, in such varying areas as pharmacy, dentistry, and medical school admission. Ties with Mexican universities are also good and could be crucial as engineering and international business programs expand. We also found partnerships with other universities on research and education projects, including with institutions in the Texas A&M System, the University of Houston System, and among public and private institutions inside and outside of Texas. Some of these partnerships, such as with the marine laboratory on South Padre Island, could be expanded in ways that help both UTPA and its partners.

While we had no opportunity to assess local capacity or interest in assisting UTPA, we recommend that a new President put high on the administration's agenda developing local government and private sector resources. The State of Texas might find some legislative means

to support such an effort, but state budgetary issues may also preclude immediate assistance. With that fact in mind, we believe the creation of a capital-construction funding source for aspiring institutions should be undertaken at the earliest possible moment. Tuition may give a possible lift, but local economic conditions and student demographics require proceeding cautiously. As with UTB/TSC, we recommend that UTPA explore the Texas grant as a potential source of funding for needy students so that increases in tuition do not harm the neediest among them.

We noted a lack of military facilities with R&D activities located near the campus; such R&D facilities can often be a source of new educational or research initiatives. Yet if there are corporations with an R&D focus and located as near the campus as possible, they should be sought out for potential research collaborations or for student assistance for research projects or summer internships.

As we noted in the UTB/TSC report, WAG puts a very high priority on increasing the collaborations in many research and education areas at UTPA and UTB/TSC. Such collaborations will add strength to any effort and to each institution.

Finally, we were pleased to note that a number of faculty have built collaborations on some research projects in a range of disciplines and with an array of universities across Texas and beyond.

All these types of partnerships enhance UTPA's research profile and potential, and the UT System should encourage and support them wherever possible.

Priority Actions to Increase Research and Education

- First, create a review committee charged with evaluating and recommending, as needed, new university, school/college, and departmental hiring plans. This committee would work closely with the new university administration and the faculty to develop a university strategic plan that emphasizes recruiting and hiring new faculty and key academic administrative personnel. The plan should also propose a process to assess finalists for faculty positions and assist in reviewing salary ranges and teaching loads based partly on research productivity. Without this step, little institutional progress in strengthening research capacity will occur. The UT System should remain apprised of this process. Earlier, we addressed the importance of deans and provosts in institutional development, and we proposed mandatory national searches and external, pre-hiring involvement by the System for such positions. Our view is that steps like these can provide a long-term foundation for the UT institutions.
- Second, a master space plan that focuses on the growing student population and the various and often-competing needs for classroom, research, dormitory, and parking must begin soon in order to have results the new president can consider. Innovative ways to finance and deal with capital construction items should be included, as well as novel incentives for students to utilize facilities for more hours per day. The process must also ensure that the faculty understand that research space comes after they secure research support. Under-utilization of such space while making funding decisions would not be judicious. We should note as well that while the planning needed to address these issues positively and productively will make itself apparent

much more rapidly than the impact on the physical plant, the dramatic value of thorough and shrewd planning will prove itself over time.

- Finally, the new President and the Provost should review all dean positions with a focus on empowering deans with more resources and decision-making authority. Should some deans be replaced, the national search already mentioned should be used to bring new life and ideas to the campus. A dynamic new President and a few new, high-level hires that share a common vision for moving UTPA forward could quickly bring results and immediately boost campus morale.

In addition, UTPA should consider moving forward in these areas to improve its research and educational environment:

- Take advantage of the Hispanic-Serving Institution (HSI) designation and seek more federal funding. Aggressively seek partnerships with institutions in non-Hispanic regions that would likewise benefit in such a partnership.
- Establish a formula to distribute the overhead funding now being returned in full to the University. The primary goal of such a formula should be to enhance research activities at UTPA and to provide incentives to secure more external funding.
- Involve additional faculty from a range of disciplines in discussions about directions and potential research opportunities that would be available to UTPA faculty and students in partnership with the Regional Academic Health Center.
- Improve the workflow processes and overall business practices that encumber the ability of faculty to efficiently work in research activities at UTPA.
- Seek non-monetary means to regularly recognize faculty research accomplishments.
- Establish a Council on Research and Creativity drawn from faculty across all disciplines that advises the chief research officer on policies and procedures that affect research on the UTPA campus.
- Review all existing centers and institutes, determine their productivity and necessity, and establish procedures to create centers as well as mechanisms to dissolve those that have become non-productive or whose purpose is no longer viable.
- Consider establishing some departmental or college mentoring programs with travel funding for younger faculty to accompany mentors to meet with funding agency officials periodically about research opportunities.
- Continue such outstanding programs as GEARUP and other such programs that are making a positive difference among the UTPA students.

How Might UTPA Look in Five Years?

We look ahead several years and see UTPA operating under new and dynamic leadership that emerged in the presidential search of 2004. The new president and a strengthened leadership team are implementing a newly developed strategic plan. While the student population continues to grow at a rapid pace and is approaching 20,000, the quality of the incoming student cohort has

improved steadily. The students continue to come from Hildago and Starr Counties, but increasingly students come from outlying counties in the Rio Grande Valley. An aggressive capital campaign is about half completed, and funding for scholarships for undergraduate students is allowing more students to attend more classes and attain full-time status. The number and quality of graduate students continues to grow, a result of larger graduate stipends supported by private sources and expanding research grants.

The University continues to gain in stature as a strong regional university with its foundation grounded firmly in the excellence of its teaching—at the undergraduate and graduate levels. The undergraduate and master's level programs have become well recognized, and they provide the strength upon which the University is selectively building several high-quality Ph.D. programs. Most of this small and select group of new Ph.D. programs are being built jointly or with one of several UT universities. The RAHC presence on campus has improved nursing, allied health, biomedical science, and engineering areas at the undergraduate and master's levels. New programs are in place or under development or planning, including new doctoral programs in math and science education, manufacturing engineering, and a nationally recognized multi-disciplinary Ph.D. in bilingual composition.

Research funding is moving toward the goal of \$20 million per year, mostly coming from expanded federal and state support. The Pan American Foundation recently stepped forward and provided major funding for several new initiatives for the University. The policies implemented to streamline the paperwork load on faculty and to distribute the full indirect cost returns appropriately have begun to pay dividends, including rising faculty morale and increasing the number of proposals being submitted. Senior research faculty—often with a junior faculty colleague—are using these returned funds to travel to Washington and Austin to talk with program officers about funding opportunities for their programs and their students.

The campus is humming with construction due to new capital funding which is enabling aspiring universities like UTPA to handle the massive influx of undergraduates. Campus expansion has begun, including new parking areas and residence halls designed to handle the new students who raise their course load each year and have become increasingly more interested in campus residency, undergraduate research, and post-graduate educational opportunities.

Thanks to enhanced partnerships with new businesses coming into the UTPA area, students are using part-time employment to gain professional experience. They have summer internships and job opportunities in fields related to their career interests. The nearly-finished capital campaign has led to new partnerships and prospects that give both undergraduate and graduate students the chance to work with local businesses and companies. The McAllen-Edinburg area and the Rio Grande Valley are beginning to attract new industries that wish to take advantage of the growing university and hire its talented graduates.

THE UNIVERSITY OF TEXAS OF THE PERMIAN BASIN (UTPB)

Overview and Mission

HISTORY AND MISSION

The University of Texas at the Permian Basin (UTPB) was authorized in 1969 by the 61st Legislature of the State of Texas as an upper-level campus to offer bachelor's and master's degree programs. In 1991, the University was authorized to add both freshman and sophomore classes. In both the undergraduate and graduate catalogues provided to the WAG team, the University is described as "a general academic teaching institution." The UTPB vision calls for "continued and sustained growth in academic programs, student services and the student body while encouraging continued improvement in our academic quality."

In concert with the mission of the University of Texas System, the UTPB mission is:

To provide quality education to all qualified students in a supportive educational environment; to promote excellence in teaching, research and service; and to serve as a resource for the intellectual, social, economic and technological advancement of our diverse constituency in West Texas.

THE WEST TEXAS REGION

UT-Permian Basin is located in one of the richest oil-and natural gas-producing regions in the world, with two relatively large cities nearby: Odessa, the home of the campus, and Midland, which is about thirty miles away. The University serves a large geographic area, designated as West Texas, which includes some twelve counties with a population of approximately 350,800 (2000 U.S. census).

The twelve counties that the university considers its primary service area include Andrews, Brewster, Crane, Ector, Glasscock, Howard, Martin, Midland, Pecos, Reeves, Ward, and Winkler. In 2000, Glasscock County had the smallest population—1,406—while Ector County had the largest, with a population of 121,123. In the 2000 census, Midland County had a population of 116,009.²²

The overall West Texas population is not growing, but is facing major demographic shifts:

- The smaller, rural counties have actually declined in population, according to the 2001 estimates by the U.S. Census Bureau. For example, while Andrews County had a population of 13,004 in 2000, the 2001 estimate was 12,795, a 1.6 percent loss. The census estimates that Pecos County's population experienced a 2.7 percent loss from 16,809 in 2000 to 16,362 in 2001.
- At the same time, estimates show that the two larger counties—Ector and Midland—experienced slight population increases from 2000 to 2001, namely, 0.1 percent and 0.3 percent, respectively, compared to a 2.3 percent increase in Texas as whole.

²² "Texas Quick Facts from the U.S. Census Bureau," <http://quickfacts.census.gov/qfd/states/48000.html>.

- In 2000, the percent of Hispanics in the West Texas area was 37 percent compared to 32 percent for Texas.

Other relevant data on these two West Texas counties and the state of Texas are reflected in the following table:

Table 5. Demographic/Economic Data for Ector and Midland Counties and for Texas²³

Demographic/County	Ector	Midland	Texas
Percent Hispanic	42.4	29.0	32.0
Percent African American	4.6	7.0	11.5
High School Graduates— percent 25 years or older	68.0	79.2	75.7
Bachelor’s or higher degree— percent 25 yrs or older	12.0	24.8	23.2
Per capita Money Income in 1999	\$15,031	\$20,369	\$19,617
Mean Value of Owner Occupied Units	\$47,700	\$73,400	\$82,500

Several key facts about pre-K through 12th-grade enrollment in the public schools in West Texas are also worth noting:

- According to the Texas Education Agency, this student population has actually decreased from 84,365 students in 1997-98 to 76,139 in 2002-2003, a decrease of approximately 10 percent.
- At the same time, the proportion of Hispanic students grew from 49.0 percent in 1997-98 to 54.4 percent in 2002-03. Meanwhile, in 2002-03
 - African Americans represented 5.6 percent of the total enrollment.
 - Native Americans represented 0.4 percent.
 - Asian Americans represented 0.6 percent.
 - White, non-Hispanic students represented 44.6 percent.

Thus, Hispanics are now the largest ethnic group in the region’s public pre-K through 12th grade schools.

The total number of graduates of the high school class of 2002 in the region was 4,735. Of these, 49.6 percent were White, non-Hispanic; 45 percent were Hispanics; African American were 4.5 percent; Asian/Pacific Islanders were 0.5 percent; and Native American graduates were 0.4 percent.

According to data from the Texas Education Agency, in 2002-2003 more than one half of these students (54.4 percent) were economically disadvantaged and 11.1 percent were limited-English Proficient (LEP) students.²⁴

²³ Ibid.

²⁴ Texas Education Agency. *Academic Excellence Indicator System, 2002-03 Region Profile*, provided by UTPB staff in the Education Service Center.

STUDENT DEMOGRAPHICS²⁵

In 2002, UTPB headcount enrollment was 2,705, up from 2,409 in fall 2000. The demographic data for fall 2002 is as follows:

- The White, non-Hispanic students represented 61.9 percent of the total.
- Hispanic students represented 32.3 percent of the total.
- African American students made up 3.8 percent; Asian Americans, 0.8 percent; and Native Americans, 0.6 percent.
- Almost three-fourths (73.9 percent) of students enrolled were undergraduates.
- About one-quarter of the students were graduate students; 14.6 percent were enrolled in master's programs and 11.5 percent were post-baccalaureate students.
- About two-thirds of new students admitted were transfer students.
- About one-third of the new students admitted were freshmen.
- Almost two-third of the total student body were women.
- About 70% of the new students were first-generation college-going students.
- One quarter of the first-year students worked 25 hours or more off-campus.
- Less than 10% lived on campus.

Enrollment at UTPB is projected to increase to 3,413 students by 2010 and to 3,504 students by 2015.²⁶ These projections may need to be reviewed, as UTPB has had one of the largest percentage increases in student populations within the UT System over the past year or two. This proportion was on a small base, however. For example, in 2001, the student headcount was 2,409; by 2003, this headcount had increased to 3,041 students.

Of the four developing institutions in the UT System that this team visited, UTPB's student population most accurately mirrors the ethnic composition of Texas as it is and will be in the near future. The other three institutions have relatively homogenous student populations. Both UTB/TSC and UTPA are heavily Hispanic. UT-Tyler is predominantly White with smaller percentages of Hispanic and African American students.

A UNIVERSITY IN TRANSFORMATION

In our opening session with the President and his senior administration, we heard of an institution undergoing a transformation in every aspect of its operations—a transformation based on growth in enrollment, growth in academic programs, and growth in student services. According to the President, SAT scores for incoming students continue to rise, with scores averaging 950 this year. The majority of students housed on campus (226) live in temporary quarters. Permanent housing for students is being planned. Four new sports have recently been added.

These more traditional activities have allowed UTPB to build a critical mass of students. We were told that the break-even point in university enrollment is 3,500 students. The growing

²⁵ Except as otherwise noted, source of student demographic data is *The University of Texas at the Permian Basin Factsheet – Fall 2002*.

²⁶ Texas Higher Education Coordinating Board, *Participation and Success Forecast 2003-2015: Texas Institutions of Higher Education, 2003-2015*, January 2003.

student population has allowed UTPB to put aside previous concerns about its financial viability and chart its direction.

In spite of these recent changes, the President noted that the UTPB student body remains composed of predominantly non-traditional students, in spite of efforts that have dropped the average age of the student body to 28. (Only a few years ago, the average age was 38.) In general, a substantial portion of UTPB students attend classes on a part-time basis and are working students; in fact, almost all the graduate students work full-time and attend the university part-time.

The institution has been—and, in our view, should remain—true to its mission of providing high-quality education to its students. It lacks the capacity and potential to become a significant player in research. This having been said, however, UTPB has some educational areas that can shine brightly in West Texas, and a small number of pockets with research capacity and potential for improvement. Having all academic activities housed largely in one building presents both opportunities and limitations. The president, David Watts, acknowledged that this arrangement has limitations, particularly for research space, and especially for biology, chemistry, and geology. Accordingly, he suggested that his highest new facility priority is a science/technology building. The timeframe for construction, however, is uncertain and depends on the Texas legislature.

The University has developed a Strategic Plan for 2001-2005, which is on file in the UT System Office and available on the University's website. The plan is cursory and seems to lack substantive components needed for charting future development. It does reflect UTPB's response to the "Closing the Gaps" Plan of the Texas Higher Education Coordinating Board.

During our visit, we received a copy of a draft Strategic Plan for Growth, 2003-2007, dated June 2003. The revised plan projects enrollment to grow to 3,300-3,600 to achieve what the university defines as fiscal breakeven with formula funding by 2008. In our view, this draft plan is also limited in substance, needs to wrestle more effectively with the directions for the institution in the longer term, and should address many of the issues that we will discuss throughout this report.

UNIVERSITY ORGANIZATION

The University is organized into four major areas: student services, academic affairs, institutional advancement, and business affairs. The academic organization includes the College of Arts and Sciences and two professional schools: School of Business and the School of Education. The College of Arts and Sciences is made up of three departments: behavioral sciences; humanities and arts; and sciences and mathematics.

In fall 2003, the University had 103 full-time faculty. More than 85 percent of the full-time faculty had earned the terminal degree, with the School of Education reporting the lowest percentage (71 percent) and the School of Business the highest percentage at 88.9 percent. A total of 49 part-time faculty members augmented the efforts of the full-time faculty.

The College of Arts and Sciences has 66 full-time faculty and offers three Master of Arts degrees (English, history, and psychology) and four Master of Science degrees (biology, criminal justice, geology, and kinesiology). Several of UTPB's largest undergraduate majors are in the College of Arts and Sciences; they include psychology, biology, and humanities.

The School of Business has 18 full-time faculty and offers both the Master of Business Administration (MBA) and the Master of Professional Accountancy (MPA). There are 420 undergraduate students majoring in business, and the MBA/MPA program has about 100 graduate students enrolled, including some taking the degree on-line.

The School of Education has 17 full-time faculty and offers the Master of Arts degree in education with the following options: bilingual/ESL, counseling, early childhood, educational leadership, professional education, reading, and special education. Seven of the university's 17 master's degree programs are in education.²⁷

UNIVERSITY LEADERSHIP TEAM

The WAG team was impressed with President Watts and his efforts to move UTPB forward in difficult economic times. The economic changes in West Texas, exacerbated by the steep decline of the oil industry in the region, have created major challenges. The community looks to the University to assist in its recovery, and the business community leadership sees research as a job-creation activity. As a result, the University is in a key position to assist the Midland-Odessa community in any recovery. With the leadership of Vice President William Fannin in the academic sector, Dr. Watts has a key piece of his vice presidential leadership team in place. (We had less time with the other vice presidents so our comments are focused primarily on Drs. Watts and Fannin.) If UTPB expects to move forward consistent with President Watts' vision, it will need a number of new faculty and new leaders in several academic areas to implement new policies and approaches to teaching, research, and outreach.

Current Research and Educational Strengths and New Opportunities

DEPARTMENT OF CHEMISTRY

One of the University's bright spots is the Department of Chemistry, which has two full-time faculty with doctorates (one tenured, one tenure-track) and two instructors with master's degrees (non tenure-track). The department enrolls approximately 30 majors and graduates eight students per year; we were told that this number of majors has been constant for more than a decade or longer. The majority of chemistry graduates go to medical schools, although at least four have gone on to Ph.D. programs. The department does not have American Chemical Society approval, but its interest in pursuing it soon was apparent.

Much of the department's success can be traced to the efforts of Dr. Michael Robinson, professor of chemistry and department chair. Dr. Robinson joined the UTPB faculty in 1976. He was trained as an organic chemist, but, given the environment in which he found himself, Dr. Robinson shifted from a traditional organic research area to an applied field, "The Synthesis of Fuels from Biomass." While his four proposals submitted in the past year have not been funded, his historical track record in extramural grant support has been an average of one award per five proposals submitted. Most of his successful funding has come from the State of Texas, the Welch Foundation, and the U. S. Department of Energy. Over the years, he has had six post-doctoral students working in his laboratories. He informed us that his current active grants support two post-doctoral students and several undergraduate students in research.

²⁷ *Statistical Information on the University of Texas of the Permian Basin*, OIRP, SFRUNIVcert.xls, F02 Course Summary. Materials provided by UTPB as background for site visit, December 2003.

Dr. Robinson carries a teaching load of 75 percent time in the current semester and expects to teach nine semester hours in the second semester. This has been his historic teaching load because of the pressing need to staff sections of chemistry courses for majors and non-majors, despite the institution's policy on release time for research and his assignment as chair. Yet, during his tenure, he has consistently pursued extramural grant opportunities and conducted research during the academic year as well as in the summer. Indeed, the only laboratory research space identified at the university was for Dr. Robinson. His success with extramural grant funding has made it possible to either renovate or construct several laboratories to provide space for students and support his research. Additionally, the University has purchased several pieces of advanced research instrumentation (250-MHz NMR and a GC/MS) not typically found in a department offering only a bachelor's degree. Such instrumentation requires maintenance and support, which the University should provide but which Dr. Robinson now does.

Dr. Robinson's record of grants and research productivity offers an impressive model of what can be achieved by a faculty member despite a culture that has not historically supported research.

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

In separate sessions, we met with faculty from the Department of Mathematics and Computer Sciences who represent another strong area within the university. Although the two areas have been combined into a single department for some time, there appears to be little structure other than a coordinator for mathematics and computer sciences who is assigned within the total department. The coordinator indicated that instructional assignments are made with relatively little discussion among the entire faculty of the department. In fact, for many years, only one or two faculty, including the department chair, taught computer sciences. In the past two years, the University has hired full-time and adjunct faculty to teach computer science. Currently, five faculty members have primary responsibility for developing instructional and research programs in computer science. About 100 undergraduate students and approximately 17 graduates per semester take classes in computer science/computer information systems.

We met with two junior faculty members who teach computer science. One had spent eight years in a non-tenure-track position and just became tenure-track after having received the doctorate. The other was the male member of a husband/wife team in their second year at the institution. The department has no extramural research grant-supported activities. But one faculty member recently submitted an unsuccessful proposal to NSF, and the husband and wife were focusing on publishing their doctoral theses. The two have published eight papers in their two years at the University, despite teaching loads as high as four courses per semester.

In spite of limitations, some strength exists in the computer science/information technology areas. With four or five additional faculty in these areas, the department might have the critical mass for a master's degree in this area. A number of the undergraduate students—while mostly non-traditional students—could possibly be persuaded to pursue this degree.

In a separate session, we met with a tenured associate professor of mathematics (the coordinator of mathematics and computer science) and two junior professors of mathematics, one in mathematics education who had given up a tenured appointment at another institution to accept a tenure-track appointment at UTPB. In the discussion, we learned that there are approximately 80 undergraduate mathematics majors and about 10 graduates per year. Virtually all graduates go into teaching, and one student per year may go to graduate school. We also learned the department has no significant undergraduate research. It does, however, seem to have an

appreciation for and interest in developing extramural research programs. Yet no proposals are in the pipeline and faculty whom we met seemed defensive about the absence of efforts to secure extramural funding for research.

THE J. CONRAD DUNAGAN LIBRARY

This facility is also a bright spot for a small university and one upon which UTPB can build. It is an attractive, modern, new facility that was occupied in 2001. The director of the library reported an operating budget of approximately \$450,000 per year. She further indicated that with the exception of the UT-Austin, UTPB has the greatest access to databases and journals of any UT campus. The library subscribes to more than 700 of the most widely used academic journals, provides access to more than 5,000 full-text electronic journals, houses more than 200,000 print volumes, has another 700,000 titles on microfilm, and is a member of netLibrary, which provides full-text access to nearly 10,000 books online. It also provides networked library research workstations with access to more than 100 electronic databases, indexes, abstracting services, and full-image electronic journals and books. The current library staff consists of four librarians; another position is vacant.

This library points out to us the uneven utilization of available databases and other library resources among the four institutions we visited. Some of the libraries, such as this one, do an effective job of promoting the availability of available access to databases and other means to retrieve books, journals, and other materials. But other faculties and students appear to utilize the available databases to lesser degrees. As the materials are available to all UT System institutions, improved awareness and then increased faculty and student utilization of these electronic resources is needed.

DIVISION OF STUDENT SERVICES

This is one of the University's best areas of educational effectiveness. We met with nine individuals who make up the division of student services and enrollment management. They have from one to 31 years of service. They shared excellent rapport, evident reinforcement of each other, and tremendous enthusiasm and commitment to students. In addition to the traditional support functions (e.g., student financial aid, registrar, student life and student housing), the University offers a variety of academic support programs, such as the math center, reading center, writing center, Programs Assisting Students Study Office (PASS), and special scholarship support through a Hispanic-Serving Institution grant which supports traditional and non-traditional student populations.

The UTPB President announced that one of the three areas of growth for the University would be in student support programs. The University has an outstanding group of staff around which such expansion should be productive and successful.

UTPB AND ITS CONNECTION TO COMMUNITY COLLEGES

UTPB has developed and nurtures its relationships with the community colleges in its service area, particularly Midland College and Odessa College. However, these community colleges do compete with UTPB for students in West Texas. Still, about 60 percent of all undergraduates at the University are community college transfers. Only in fall 2003 did students

entering for the first time as freshmen exceed the number of community college transfer students.²⁸

Several adjunct faculty at UTPB are full-time faculty members at the community colleges, and UTPB offers courses at Midland College, taught by full-time UTPB faculty. The *UTPB Spring 2004 Course Schedule* includes one page in which lists the “upper-division classes offered for Midland College students and others by UTPB” at the Midland College campus. The “Direct Connect” transfer program allows students from Midland College to transfer easily from the completion of their associate’s degree to study for the bachelor’s degree at UTPB. The two institutions also have an agreement on the use of space.

In December 2003, UTPB filed with the Southern Association of Colleges and Schools its formal notification of intent to offer six baccalaureate degrees, teacher certification, and a master’s degree on the Midland College campus beginning in fall 2004. Currently, the schedule lists two courses each in accounting, child and family studies, and English; one course each in history and psychology; five courses in education; and three night courses—one each in English, history, and education. There are also other collaborative arrangements being discussed, including the possibility of working together with the Globe Theatre of the Southwest (the Shakespeare Theater), which could strengthen both UTPB and the Globe Theatre.

JOHN BEN SHEPPERD PUBLIC LEADERSHIP INSTITUTE

A unique program in many ways, the Institute is an effective educational activity and could pay substantial dividends for the University. Its program of community-based educational forums for high school students, whose participants are expected to develop their own projects for continued leadership training and education, is highly successful and has local community support. The goal is to reach 50 schools and have at least 100 students participating at each site.

We spoke with faculty from a range of disciplines that have added a leadership component to their courses. While the bachelor’s degree offered by the Institute is only two-and-a-half years old, it is the only such program at a public university in Texas and one of only a few such programs in the nation. It has established internships in Texas and Washington, DC; leadership workshops around the state for outreach and constituency building; and the high school leadership curriculum. All are outstanding steps forward for the Institute and UTPB.

The University should re-enforce its support for this outstanding program by hiring a permanent executive director as soon as possible and continuing to urge faculty participation in its interdisciplinary leadership major. The strategic plan identified this Institute and leadership studies as areas for emphasis, so the University should continue to focus and nurture this Institute. A fully integrated program that drew courses from history, political science, business, and other areas could set the stage for a master’s program in the future.

FINE ARTS FACILITY

This state-of-the-art facility, one of the best of its kind at any university in the country, is a showcase of student and faculty work and a boon to the community. The facility might further stimulate interest by regularly inviting the community to special showings/exhibits and creating programs that would provide children with early exposure to the fine arts. Because of the

²⁸ *UTPB Fact Sheet Fall 2002*, Office of Institutional Research and Planning. Provided to WAG team in December 2003.

excellence of this facility and the commitment of those with whom we met here, we are persuaded that such community efforts could serve many positive purposes, including creating extensive new funding opportunities. We believe the community would respond positively to such an initiative.

SCHOOL OF BUSINESS

We were impressed with the energetic leadership of the dean of the School of Business and with her own active engagement in scholarly activity. She demonstrates what faculty must do to assume greater responsibility for scholarship. But the School could enhance its research effectiveness by securing extramural funding and exploring potential research and other collaborative efforts with business faculty at other institutions.

Our team heard about the new effort in industrial technology in the School. Since UTPB lacks an engineering or technology program, and needs closer ties with business and industry already in or relocating to West Texas, we encourage the University to review this effort carefully to ensure that it is housed in the academic unit that will enable it to provide maximum benefit to UTPB, the community, and the students who will become involved in the program. An engineering program would take twenty years to develop, while a broadly based technology program—with courses from computer science, other science departments, the new applied technology activities, and innovative approaches and perspectives added from the business faculty—could make applied or industrial technology vital to West Texas economic development. For guidance, UTPB should review several model university technology programs. Southern Illinois University, Arizona State University, and Purdue University each have a variation of such an effort built around technology that might, with modifications, be feasibly adopted.

In more traditional business fields, UTPB has several strong research efforts, including the research of the dean and of Professor Renee Fontenot in marketing. Professor Fontenot, who focuses on international issues, should explore opportunities to work with the fine international business faculty at UTPA as well as with related faculty at UTB/TSC; the latter, after all, has a new, renovated facility and emerging research interests in international business and trade.

CENTER FOR ENERGY AND ECONOMIC DIVERSIFICATION (CEED)

Through its research and extension programs, CEED seeks to help facilitate regional economic development.²⁹ It houses the Economic Development Administration (EDA) University Center, the Small Business Development Center (SBDC), and the Petroleum Industry Alliance. During our visit, we were briefed and provided information on the activities of the EDA University Center and the SBDC.

The EDA University Center provides management and technical assistance for 30 counties in West Texas through workshops, seminars, training programs and consulting services. Since obtaining its first grant from EDA in 1988, UTPB has been awarded almost \$1.5 million from that organization to support the regional activities of the institution's EDA University Center. University matching requirements for these awards totaled \$900,000.

SBDC focuses on client counseling and training in start-up, expansion, and problem-solving as well as networking opportunities for small businesses in a 16-county area. We were

²⁹ Materials presented to WAG team by Dale Bishop, assistant, EDA University Center, December 17, 2003.

told that SBDC helped 350 businesses to open over a five-year period, of which only 30 have closed. This is impressive, given that, according to the SBDC director, half of all new businesses close during their first year of operation and half of the remaining ones close within five years.

While staff from these two programs presented evidence of their effectiveness, we received fewer details on the activities of the Petroleum Industry Alliance. We learned that CEED houses the two programs and serves as the site of workshops and seminars conducted by the EDA University Center and SBDC, but its other roles were not made clear.

The University, through programs like CEED or others, must consider ways to assist the local community in addressing the difficult declining economic picture in the Midland-Odessa region and its impact on oil-related employment.

One area that might be particularly ripe for collaboration is the UT System's University Land Management Office, located near UTPB, which might be encouraged to provide some demographic assistance to the Center for Energy and Economic Diversification (CEED). Discussions now underway could allow an individual the opportunity to affiliate with institutions in the Midland-Odessa area and at UT-Austin. Such an arrangement might also provide opportunities for research collaborations and provide the potential to lead to additional collaborations with the private sector.

Collaborative efforts with small businesses, the chambers of commerce, and other community leaders must begin with university involvement. President Watts is aware of the issues and knows that the community looks to him for substantial leadership in this arena.

COMMENTS ON SELECTED DEPARTMENTS RELATIVE TO RESEARCH

We visited faculty from most of the departments on campus. Several should be encouraged and provided incentives—with a review of progress—to move more aggressively into research and creative areas. These include

- Biology, where we heard comments about the successes preparing students for medical school. With approximately 200 majors, it has more majors than almost any department in the University. While the faculty is focused on teaching, most have been less than aggressive in pursuing external support for their work.
- Geology, which has a history of conducting research on problems related to the oil industry in West Texas. Since this industry is changing rapidly, so should the department and its research focus. The potential addition of one faculty member or more over the next several years may reinvigorate this important department.
- Kinesiology, which has two tenured faculty and three tenure-tracked members, who together teach approximately 200 undergraduates. About one in ten of its majors continue to graduate school. This area might take a lead in expanding on-line offerings through the TeleCampus, possibly with UT-Tyler.

Actions That Could Strengthen Research and Education Activities

PLAN FOR FILLING FACULTY VACANCIES AND NEW POSITIONS

UTPB should intensify efforts to fill its seven or so faculty vacancies as well as the ten new faculty positions authorized to support expanded degree-program offerings. Filling these positions could relieve some of the teaching load pressure faculty feel in the departments where the vacancies exist, such as psychology and sociology. We should note that the inadequacy of the physical plant requires the institution to reduce the size of existing faculty offices to provide new faculty with office space.

The vice president for academic affairs, along with the deans, should develop a strategic hiring plan for these vacancies. The plan should focus on developing strong research, creative, and educational priority programs for UTPB. It should place emphasis on attracting faculty whose backgrounds demonstrate that research is integral to their academic portfolio. These new faculty hires will assist in making the culture at UTPB more demanding, including by mentoring younger faculty to follow their research interests and by making the pursuit of research and research funding central to the institution's mission.

As elsewhere, we must suggest that retiring faculty at Canadian universities may offer a stopgap measure for faculty recruiting.

FIRST-GENERATION COLLEGE STUDENTS

While this institution provides needed educational opportunities for first-generation college students who constitute almost 70 percent of the student body, these students also need access to a curriculum enriched by research and to faculty who can provide high-quality undergraduate research experiences. This is not the case at this time. Neither are there large numbers of UTPB students who have been interested and pursued research careers through graduate programs at research universities. With the lack of undergraduate research opportunities at UTPB as currently exists, it is also doubtful that UTPB students could be competitive with many other undergraduate students who have been exposed to research and would also be seeking admission to graduate schools within and outside the UT System. Except for isolated, anecdotal comments regarding a few students gaining admission to medical school, we received no quantitative information on students entering and succeeding in competitive graduate research programs.

The institution would like to attract more traditional students by expanding student programs and services and adding on-campus residential facilities. Some progress has been made on housing through trailer homes that can accommodate approximately 200 students. Fewer than 60 students lived on-campus two years ago.³⁰

HB 1839 FUNDING FOR RESEARCH INFRASTRUCTURE DEVELOPMENT

We were interested in a program created by the legislature that in concept was an outstanding model for encouraging research and improving education. Dr. J. Tillapaugh, the assistant vice president for graduate studies and sponsored programs, indicated that he has been with the University for over 30 years and had taken over the Office of Graduate Studies with no support for research and sponsored programs. He described the use of House Bill 1839 Funds

³⁰ Information based on discussions with UTPB student services group, December 18, 2003.

Program, which he administered and which the Texas legislature authorized. This program ran for two years at \$250,000 per year; its purpose was to improve and encourage faculty research. UTPB was one of eight Texas universities deemed eligible for this program. The legislature did not renew it after the 2002 academic year.

At UTPB, the HB 1839 Funds Program had two components: (1) an arbitrary limit of \$2,000 for faculty research development and (2) sponsored project development to support a pilot study or the completion of research needed to apply for external grant funds. Grant support included teaching-load reduction, travel to proposal-writing workshops, and support of graduate students in computer science, biology, and chemistry. The intent of the program was to help develop a research culture at the University. We were told that the program was administered with a review panel composed of experienced faculty with input from the appropriate dean.

To secure sponsored project development funds, faculty had to submit a proposal for extramural funding. Several academic areas were targeted, including biology and kinesiology. For example, four grants were awarded to faculty in the Department of Biology, but no proposals were submitted to external funding agencies. Although the legislative funding ended with the 2002 academic year, we were told that the University provided supplemental funding of \$87,000 and \$49,000 in years one and two, respectively, and funding of \$100,000 in the 2003 academic year to continue the program.

This HB 1839 program was a fine example of how a small amount of state funding can make a difference at an institution like UTPB. The seeding effect of these funds could have jump-started research programs at the University. The manner in which the University implemented the program, however, greatly reduced its effectiveness. The funds were provided, but there was little communication between the Office of Sponsored Programs, deans, and individual faculty who received the awards. In several instances, the awards produced no research proposals (and obviously no external funding).

The University could initiate this kind of program, possibly with matching funds from the System, without legislative assistance. We would support such an effort if procedures for appropriate follow-up and evaluation were in place prior to restarting this effort. Indeed, the UT System might consider this type of small seeding program for several of its developing universities across the state.

RESEARCH SPACE

Several of the faculty cited the lack of research space as a major impediment to conducting research and a sign of the institution's failure to provide an environment that supports its recently stated emphasis on research and creative efforts. In fact, in meetings with more than one faculty group, we found some resistance to preparing research proposals; such efforts were viewed as a waste of time since research space was not available. The institution's claim that it offers "modern research facilities" (Graduate Catalogue, 2002-2004) may be exaggerated.

Deans should play an active role in stimulating research proposals and using successful proposals to drive space discussions. Space is rarely provided prior to funding at most universities, and such decisions at UTPB should not be an exception. Yet the fact that the University offers all of its academic programs, except for fine arts, in one building limits its ability to make room for research. As already noted, we were told that a new science building is the University's highest construction priority in the coming legislative session. We encourage the UTPB leadership to revamp their strategic planning process, strengthen the draft plan being

developed, and ensure that space and facility issues become central to such a plan. This would be the time, before discussions with UT System staff, legislators, or others, to determine faculty and University priorities for using space in such a new building. Planning space and facilities should be a key part of strategic planning. When the deans and the vice president for academic affairs develop a hiring component for a strategic plan, they should also address requirements for offices, classrooms, and research space in coordinated fashion.

INADEQUATE INTERNAL SUPPORT FOR RESEARCHERS

Other reasons offered for the lack of research productivity included the inadequacy of internal assistance in proposal preparation, heavy teaching loads, inadequate administrative support, and a lack of support for graduate students. We note, however, that the nine-hour teaching load of most faculty and the number of part-time faculty (63 in fall 2002 to support the 96 full-time faculty) at UTPB allow for fewer courses and smaller numbers of students than at other developing campuses in the system. Furthermore, we heard that getting the reduced teaching load for research purposes was “almost routine” in a number of areas, and that deans rarely followed up to determine the results of these reduced loads.

Another major concern is the inadequate support the Graduate Studies and Sponsored Research Office provides for preparing proposals and implementing projects. It is not clear who at the University is responsible for encouraging faculty members to submit proposals. Apparently, the process for submitting proposals to external funding agencies does not involve the deans in any significant way. Our team heard from several faculty that it is unclear what support the Office of Sponsored Programs provides. The University should review the functions and activities of the office. Other universities we have visited have installed innovative approaches to assisting faculty, including placing a grant writer/budget assistant into each major academic unit of the university. For UTPB, such a decision may be premature. It should first review the sponsored research office, evaluate its functions, and determine its new requirements. And a staff member with extensive development experience and familiarity with a range of funding sources, particularly the federal government, should be assigned or recruited to lead this unit.

Finally, the University could improve fundraising so it could better support faculty. If it made focused efforts to develop a fund that provided faculty resources to travel, paid for partial sabbaticals for productive faculty, developed proposals with small seed grants in the sciences as well as the social sciences and arts, and paid for some small research costs, the University and the community would reap substantial dividends.

RESEARCH CULTURE

When seeking to get an understanding of the research culture at UTPB, we heard a similar descriptive comment utilized in more than one discussion: “learned helplessness.” It was used to describe some UTPB faculty and their lack of interest in research. Regrettably, this may accurately reflect on those faculty who seek excuses for not becoming more involved in research and creative endeavors. As one of our team noted, UTPB was an upper-division and graduate university before it moved into the full university model and admitted lower-division students. Hence, it is somewhat surprising to find that the faculty view toward research at UTPB is not much different from what might be expected at a community college. Faculty culture is one of the most serious issues the University must address to move upward.

We urge the vice president for academic affairs and deans to devise strategies for expanding and adding new faculty leadership that can change this viewpoint. Similarly, the University should explore whether rotational changes of certain administrative positions would help change the culture. Neither faculty nor staff should see administrative leadership as a lifetime position.

We also urge the vice president for academic affairs and deans to re-examine the institution's extensive use of part-time faculty, especially if it results to some extent from having full-time faculty teaching at area community colleges. Part-time faculty do not relieve faculty of advising and committee assignments.

POLICIES FOR TENURE AND PROMOTION

The University must ensure that it has defined and accepted salary, promotion, and tenure policies (this is a particular problem for the College of Arts and Sciences and the School of Education). It also must make certain that its policies on post-tenure review are broadly disseminated and understood. Without such policies, it will be impossible to change the research culture. Once policies are promulgated, discussions between individual faculty and their deans concerning expectations can take place. Such policies should be applied uniformly, objectively, and consistently. Yet, as always, some flexibility should be employed in administering the policy and the new expectations of faculty regarding their productivity.

CONTINUING TO ENHANCE UNDERGRADUATE TEACHING

The University can and must continue to play a substantial, growing role in educating the college students of West Texas with increasing effectiveness as the number of students surges. UTPB should thus continue to focus on being an undergraduate teaching institution. Providing high-quality education to an atypical student body is vital. Offering enhanced opportunities via such programs as NSF's Research Experiences for Undergraduates would be a positive step. Students would also benefit if UTPB partnered with faculty at other universities who have research grants; faculty could often simply add undergraduate support to existing awards with a letter to their funding agency.

SETTING REALISTIC GOALS FOR RESEARCH FUNDING

Nationally, every university faces constant and continuous pressure to enhance external research support. Achieving that goal has many potential advantages, including making most researchers better teachers, providing opportunities for undergraduates and better preparing them for a competitive graduate education, and attracting additional resources for the faculty and university. It is equally important, however, for systems and institutions to realistically assess potential and develop plans appropriate to that potential. It is clear to our team that UTPB cannot and will not become a major research university. Limiting factors include student populations, which the Texas Higher Education Coordinating Board had estimated to expand to only 3,500 by 2015.³¹ Even if UTPB exceeds this student population, the University, in our judgment, could still lack a sufficiently critical mass of students; would have only a limited number of graduate students; would have sub-critical numbers of faculty in key areas; and would have inadequate physical facilities for handling substantially larger numbers of students.

³¹ Texas Higher Education Coordinating Board, op.cit.

This having been said, however, the University should develop a realistic strategic plan that emphasizes improved undergraduate teaching, better graduation rates for its students, a focus on a few research bright spots, improved and expanded community outreach (including new efforts in the arts), improved teacher-training activities, and service to the local and regional community to assist in economic development.

The University might realistically establish the goal of reaching \$4 million in federal research expenditures annually by 2010. This would be a substantial increase and would require a strategic hiring plan that targeted faculty with research interests and a better research infrastructure and support system to assist faculty in reaching this goal. As it seeks to do so, UT System support, experimental programs with small matching components, and encouragement for this institution and others to pursue higher goals would benefit the state and these developing institutions specifically

Faculty Research Productivity and Culture

The University offers bachelor's degrees in 29 subject areas and master's degrees in 17 fields through its College of Arts and Sciences, School of Business, and School of Education. In 2002, 83.3 percent of the 96 full-time faculty members were tenured or tenure track and 88.5 percent of them held the Ph.D. or equivalent degree.

Table 6 below reveals that in 2002, faculty in the humanities and fine arts were the most productive in research in 2002, while faculty in the School of Education were the least productive. Thirty-nine of the 96 faculty (or 41 percent) listed in the institution's undergraduate catalogue (2003-2005) have received their doctorate since 1990. It seems reasonable to assume that faculty who recently obtained their doctorates would be among the most productive faculty. However, based on this data from the university, only 13 of the 39 faculty considered most productive in 2002 received their doctorates since 1990, while 13 received their doctorates prior to 1990. The remaining faculty included two for whom the master's was the highest degree held and two who held the Master of Fine Arts as the highest degree.

Table 6. Analysis of UTPB Faculty Scholarly Productivity – 2002³²

Dept./ School	Behavioral Sciences	Hum. & Fine Arts	Science & Math.	Busi-ness	Educa-tion	Total
<u>Publications:</u>						
-Refereed	13	9	4	22	6	54
-Non-Ref.	2	4	0	0	0	6
Books	3	2	0	1	0	6
<u>Presentations:</u>						
-Conferences	19	12	14	13	11	69
-Proceedings	1		10	9	0	20
-Productions		14				14
External Grants & Contracts	4 Total: \$97,000	2 Total: \$3,000	4 Total: \$280,000	0 Total: \$0	5 Total: \$2.64M	15 Total: \$3.02M
<u>Other:</u>						
-Submitted	2 Articles	14 Art. & 2 Books	5 Articles 1 SupplBook Materials		0	21 Articles 2 Books 1Bk Supp
-Book Review	3	1		1 Bk Rev	0	5 Bk Rev'w
-Abstracts	1				0	1 Abstract
-Translations	0	1	1 Technical Report	1 Dis-sertation	0	1 Translat. 1 Tech Rpt
-Works in Progress	0	1	3	0	0	1 Dissertat. 4 in Progres
No. Faculty Not Reporting	3	2	4	4	0	13
Total Faculty	16	16	17	17	10	76

The number and percentage of faculty holding grants provides another measure of faculty productivity. The following table shows the number and percentage of tenured/tenure track (T/TT) faculty at UTPB holding extramural grants during the 2000-03 academic years as well as the number of grants held.

Table 7. Grant Productivity of UTPB Faculty, 2000-01 through 2002-03

	2000-01	2001-02	2002-03
# of T/TT Faculty Holding Grants	13	15	11
# of Grants	19	28	15
#FTE T/TT Faculty	67.2	72.25	74.25
percent of T/TT Faculty Holding Grants	19%	21%	15%

³² Source: Information for this chart and other data referenced here on faculty productivity and publications provided by UTPB prior to December 2003 site visit.

Furthermore, more than 74.3 percent (\$2,591,659) of the \$3,490,022 received from various sources during the 2001-02 academic year resulted from the efforts of one faculty member, with the remaining dollars (\$898,363) raised by 17 others (12 faculty, 4 non-faculty, and 1 lecturer). That year, 24 individuals (17 faculty, 6 non-faculty, and 1 lecturer) submitted a total of 43 proposals and of which 27 were successful, representing a proposal success rate of 63 percent and a faculty success rate of 76 percent (13 successful out of 17 submittals). These outcomes are impressive.

Less impressive, however, is that only 18 percent of the faculty (17 out of 96 full-time faculty) submitted proposals. Furthermore, our review of the groups/agencies to which faculty submitted proposals shows they are missing many opportunities for federal support. This fact is particularly unfortunate since the University has recently been designated a Hispanic-Serving Institution (HSI), enabling it to compete for special funding from federal agencies. It also appears that many of the faculty seem not even to be looking for opportunities. An aggressive Office of Sponsored Research, conducting workshops and providing databases on sources of funding, could assist in remedying this problem and strengthening the research infrastructure. We discussed with officials at the various universities the value of conducting workshops with federal agency officials, experienced grant-writing faculty, or outside experts familiar with writing successful proposals. We encourage the sponsored research staff at UTPB to develop and implement a regular series of workshops of this kind to acquaint faculty with opportunities for external funding.

The overriding message from the faculty with whom we met was that the University's core mission when they were hired was to focus on teaching and not research. Many did not appear to see what research could add to their teaching and their students' educational experiences or competitiveness for graduate school. Neither did they see it as related to their own professional development.

To help address this deficiency in the faculty's perception of the importance of research, we recommend that UTPB's search for deans, as we have recommended at other universities, become national and entail UT System pre-decisional review of finalists. We have also recommended that outside hiring be encouraged and we recommend this for UTPB as well. (We have described these ideas more extensively in earlier sections of this report.)

The University must also expeditiously change its policies on tenure, promotion, and retention and develop a strategy for implementing them. The policies should reflect the institution's research expectations for faculty hired well before the new standards were announced. Implementation may need to be done on a case-by-case basis. The policy might allow for extending the time during which they must provide evidence of their scholarly productivity. First, however, the new promotion and tenure policies must be discussed and implemented in every academic unit. Creating and promulgating these policies should be the University leadership's highest priority.

Opportunities for Collaborative Research and Education

The System asked us to assess collaborative research opportunities at or near the various institutions. The Midland-Odessa area has limited opportunities for such work. The overall economy of this region is poor at this point, and few industries are interested in research collaborations with UTPB. Neither are there nearby medical research facilities with which it could collaborate nor are there military facilities with an R&D focus to exploit.

Yet, to their credit, some departments and faculty have explored working together with colleagues at other institutions. For example, kinesiology has examined potential collaborative degrees with other Texas institutions, including UT-San Antonio, UT-Arlington, and UT-El Paso; these efforts, however, did not lead to degree offerings. Still, this model of working with other universities has succeeded at other institutions in the system. In fact, UTPB has a joint master's degree program in criminal justice with Angelo State University and an online master's degree. Such educational programming exemplifies how to collaborate with another university and bootstrap a graduate program with the aid of another university. It should be replicated in other departments.

Two community colleges near UTPB offer the registered nursing program, and UT-Galveston offers a "2+ 2" program in this area. A new joint effort in clinical laboratory sciences with UT-Galveston may provide open the door to collaborating in the medical arena. A new bachelor's degree in applied science that the Regents have approved might provide other opportunities for collaborating with local industries and then evolve to affect such areas as the computer sciences and the new technology program discussed earlier.

Distance-learning capacities at UTPB, particularly under the leadership of Dr. Doug Hale and his REACH program, allow departments to develop collaborative educational programming and degree offerings. With the UT TeleCampus activity allowing easy access to online degree programs and with a number of UTPB courses being offered online, the campus should dramatically expand distance learning. UTPB can benefit greatly from increased use of the TeleCampus and thereby offer students more courses without incurring the added costs of hiring new faculty to teach such courses.

How Might UTPB Look in Five Years?

By 2010, UTPB will hopefully have reached an annual research expenditure level of more than \$4 million. Substantial proportions of these funds will be coming from the U.S. Department of Education and increasingly from the NSF. These agencies will be funding quality proposals from the Departments of Education, Chemistry, Computer Sciences, and, more recently, Biology. A new area of academic strength is the new technology program built around applied science, computer science, business, and industrial technology. The growth in this area has resulted from an increased focus on external support for research, including close ties with a slowly rebounding economy of West Texas, particularly Odessa and Midland. Strong faculty members in the School of Business are also key players in this local and regional economic resurgence, and are leading many of the efforts to attract international businesses to West Texas. Undergraduate programs have grown in stature statewide with strengths in chemistry, biology, computer sciences, technology, and areas within the arts and humanities arousing student interest.

The UTPB campus is changing as well. Planning is continuing for a possible new campus building. It will help satisfy the demand for expanded classes that has resulted from enrollment increases and for new research space that has emerged from the senior and new faculty as the strategic plan has taken hold. UTPB students are excited about the addition of several new faculty in key areas who augment areas highlighted in the strategic plan.

The student population has surged to almost 4,000 students. A small number of new master's degree programs, many of them offered collaboratively with neighboring universities, have provided an important model on how developing institutions can bootstrap limited resources into viable academic programs. Additional joint-degree programs have been added through the UT TeleCampus program for online degrees. The offerings made possible by the TeleCampus

have led to substantial student population growth without comparable increases in new faculty. Thanks to sustained recruiting efforts inside and outside the West Texas region, UTPB welcomes students from across Texas. Closer ties between UTPB and both Odessa and Midland Colleges are increasing enrollment. President Watts continues to meet regularly with Kiwanis and Rotary Clubs to spread the word about UTPB and challenges them to provide scholarships to their best students to attend UTPB. The “Direct Connect” seamless transfer program, including a larger UTPB presence in Midland at the college, has also contributed to UTPB’s growth. The two institutions are discussing even closer ties.

As part of a national economic resurgence, the Texas economy has rebounded as well. Though oil revenues and extraction have not kept pace with growth, the new technology program at UTPB has enabled its graduates to work with new oil-extraction technologies.

THE UNIVERSITY OF TEXAS AT TYLER (UT-Tyler)

Overview and Mission

The University of Texas at Tyler is a relatively young institution. It was founded in June 1971 as an upper-division college that offered both undergraduate and graduate degrees. In 1975, it changed its original name, Tyler State College, to Texas Eastern University. In September 1979, it became part of the UT-System. Beginning in the fall 1998 semester, the Texas legislature authorized the university to enroll freshmen and sophomore students. The initial limit of 50 full-time student equivalents was lifted four years later, and a larger incoming class was accepted in the fall 2002 semester.

The University serves a 14-county area in East Texas, referred to as the East Texas Planning Region, with a population of approximately 850,000. The racial/ethnic mix of the area served by the University is 74.1 percent White, 16.5 percent African American, 8.4 percent Hispanic, and 1.0 percent other. The poverty rate for the area is 12.7 percent, but it varies significantly among families from different racial/ethnic groups:

- 8.5 percent for Whites,
- 29.3 percent for African Americans,
- 26.9 percent for Hispanics, and
- 13.4 percent for Asian Americans

The main campus sits on 207 acres in Tyler. The University has two other campuses, in Longview and in Palestine. The UT-Tyler campus, which we visited, is comprised of 18 buildings that provide approximately 700,000 square feet of space. All UT-Tyler buildings are less than 25-years old.³³ Because the university was originally created as an upper-division university, the classrooms and buildings were designed to accommodate smaller numbers of upper-division undergraduate or graduate students. Few rooms can seat 90 or more students.

UNIVERSITY MISSION AND STRUCTURE

The mission statement specifies

The University of Texas-Tyler will be nationally recognized for its excellent programs in the professions and in the humanities, arts, and sciences. Guided by an outstanding and supportive faculty, its graduates will be known for the quality of their knowledge and for their integrity, leadership ability, communication skill, technological competence and global awareness.

Our discussions with faculty and students convince us that UT-Tyler, with its unique focus on “The UT-Tyler Tradition,”³⁴ has taken a large step forward in developing and instilling a high-quality and unique undergraduate experience.

³³ *UT-Tyler: Administrative and Governance Structure in Context of Research*, pp.1-2. Materials provided to WAG for site visit, October 2003.

³⁴ The “UT-Tyler Tradition” is a core curriculum emphasizing broad learning in the humanities, arts and sciences (UT-Tyler Office of the President *Strategic Plan – New Millennium Vision*, August 16, 2000).

The university is organized as follows:

- A group of vice presidents and staff report to the president, including the provost and vice president for academic affairs; the vice president for student affairs and external relations; the vice president for business affairs; the executive director for university advancement; and the executive director for information technology and institutional research.
- UT-Tyler has five colleges: arts and sciences; business and technology; education and psychology; engineering and computer science; and nursing and health sciences. One of the five deans was serving on an interim basis when we visited the campus.³⁵

The University has not yet conferred its own Ph.D. degree, although the university and Board of Regents have approved a Ph.D. in human resource development (HRD). The Higher Education Coordinating Board (HECB) failed to approve this degree at its January 29, 2004 meeting. (We will comment on this decision later in this report). The University currently offers the HRD degree jointly with Texas A&M University.

In 2001-2002, 15 percent of the degrees awarded were at the master's level and 85 percent at the bachelor's level.³⁶

The University has 190 full-time faculty, 78 percent of whom hold the terminal degree in their field. Approximately 100 of the full-time faculty were hired in the past four years. The University has approximately 95 part-time faculty.

The University takes pride in the quality of its teaching and the fact that lower-division students have a good chance of being taught by a full professor. The focus has been on teaching, and faculty members regularly teach four three-credit courses a semester, many times with four different preparations. While some faculty members are pursuing research activities, the University has little free laboratory space for immediate expansion for large, new research initiatives by the faculty. But a lack of existing research space is no reason to fail to pursue research opportunities. Research space is rarely available until the funded project demands it.

STUDENT DEMOGRAPHICS

Enrollment in 2002 was 4,254 students: 3,409 undergraduates and 845 master's students. For the last four years, enrollment has exceeded projections, principally because the university developed an enrollment management plan, increased advertising, and expanded its academic scholarship program. Many of the graduate students work off-campus, some of them full-time. More than 50 percent of the students are first-generation college students. Female students constitute more than 60% of the student body. The recent demographics of the student population was

- 82.0 percent White
- 9.3 percent African American
- 4.6 percent Hispanic
- 1.4 percent Asian
- 1.5 percent Other

³⁵ *UT-Tyler: Administrative and Governance Structure in Context of Research*, pp. 2-3.

³⁶ *UT-Tyler Factbook 2002-03*, p. 21 and p. 34.

This is a relatively homogeneous student body, compared to the local area served by UT-Tyler, which is about 25 percent minority. (Estimates state that the population of East Texas is 16.5 percent African American and 8.4 percent Hispanic, and that in the near future, 50 percent of the Texas population will be Hispanic.) The Hispanic and African American population of the UT-Tyler community is also increasing.

The UT-Tyler community also ranks lowest in the state based on percentage of college-age individuals who attend college. Only 5.2 percent of all people in East Texas between the ages of 18-34 attend four-year colleges, or 13 percent below the statewide average of 6 percent.³⁷

Students admitted to UT-Tyler attend without any probationary status. We were told that the average test scores for incoming freshmen are 1070 on the SAT and 22 on the ACT.

THE TRANSITION FROM COMMUNITY COLLEGE TO UNIVERSITY: IMPLICATIONS FOR STUDENT RECRUITMENT

A significant number of the students have transferred from community colleges in the area. Within a 35-mile radius of the UT-Tyler campus there are five colleges or junior colleges. They account for about 60 percent of UT-Tyler's enrollment.³⁸ To be specific, in fall 2003 UT-Tyler enrolled

- Almost 1,000 students from Tyler Junior College (enrollment 8,700),
- 368 students from Kilgore Junior College (enrollment almost 4,200),
- 266 students from Trinity Valley Community College in Athens (enrollment more than 5,000), and
- More than 50 students each from Jacksonville College and Lon Morris.

UNIVERSITY LEADERSHIP TEAM

In our view, UT-Tyler is fortunate to have in President Rodney Mabry a dynamic and visionary leader who recognizes targets of opportunity for strengthening the institution and increasing its contributions to the UT System as well as to the East Texas region and state. We particularly commend the strong working relationship the President has developed with Dr. Kirk Calhoun, President of the University of Texas Health Center in Tyler (UTHC-T). This collaboration can make a tremendous difference to the health needs of East Texas, and could also, in our judgment, provide the foundation for highly productive and effective research and education that greatly benefits the university, UTHC-T, and community.

We were impressed as well with the relationships President Mabry has established with numerous community leaders we had an opportunity to meet. This distinguished group of leaders persuaded us of their commitment to UT-Tyler, to President Mabry's efforts, and to providing whatever is needed to move the academic and educational activities of UT-Tyler forward.

³⁷ Ibid., pp. 12-21.

³⁸ Data requested and email received from Mr. Jesse Acosta, executive assistant to the UT-Tyler president, November 4, 2003.

UT-Tyler Model: A Strong Undergraduate Institution with Challenges for Research Growth

As it transitions from being an upper-division college, the University faces the challenge of accommodating an increasing number of lower-division students. The enrollment surge affects space, facilities, services, and the pervasive teaching-load problem. At the same time, the institution is feeling pressure to increase its graduate programs and degrees and to become more research-intensive.

In our judgment, the University should retain its focus on undergraduate and master's level instruction and research. UT-Tyler should only selectively pursue doctoral programs. A realistic goal for research expenditures over the next several years might be \$5 million per year. Attaining this goal would amount to a major increase over current levels.

The University's focus on the UT Tyler Tradition is among its most significant strengths. This core curriculum fosters rigorous intellectual and academic growth in all disciplines. Through this tradition, and a faculty that works closely with students engaged in learning, UT-Tyler can offer an outstanding educational experience to its undergraduates.

But UT-Tyler faces a challenge in its atypical undergraduate population. Students largely live off-campus (residence hall opportunities are limited), hold outside jobs, and attend UT-Tyler part-time. Many students we met face tremendous financial and time pressures. These circumstances not only could impede their learning experience, but could also limit UT-Tyler's capacity to build a strong educational and research base for the future.

The graduate student population is also atypical, while the lack of faculty time and limited extramural funding in most areas prevent any focus on graduate programs. In our judgment, only with carefully prioritized, implemented, and monitored development should select doctoral programs emerge.

The faculty seems comprised of two groups: an older, tenured group hired under a mission that focused heavily, if not exclusively, on teaching, and a second group of mostly younger faculty often hired under an evolving direction to teach, but also to initiate or continue research activities. In either group, faculty who want to conduct research face limitations that are difficult to overcome. Weak departmental leadership in some areas exacerbates the situation. Many of these leaders, who are often senior faculty, lack the vision or history of research output to lead UT-Tyler to the next level. The impact shows itself in hiring decisions that have not brought in top-quality faculty. We also saw no evidence of a plan for rotating departmental leadership or encouraging strong external hiring of talented new faculty. The University must surmount these overriding limitations to have any realistic chance of becoming a significant regional research university in the near future.

Current Research and Educational Strengths and New Opportunities

We met an extraordinary set of younger faculty as well as a number of active and determined members of the senior faculty. But we also met some faculty who had little desire to change their exclusive focus on teaching. Given its overwhelming teaching loads, UT-Tyler might benefit by shifting more teaching hours to such faculty and thereby freeing up time for other faculty who wish to pursue active research programs.

We were informed that there has been fairly extensive hiring recently. As of 2002, the faculty numbered 44 full professors, 49 associate professors, and 62 assistant professors. Future hiring must be focused if UT-Tyler hopes to identify viable research areas and meanwhile balance its faculty's teaching loads. On a related point, the University should consider rotating several of the more senior departmental leaders and replacing them with faculty who recognize the importance of integrating research in select areas into the educational tradition. Such a change would help maximize opportunities to invigorate departments and provide leadership that moves them forward aggressively.

These assessments and remedial actions should also be undertaken quickly. We talked with a number of strong junior faculty who may soon be forced to seek other career opportunities if they are not rescued from the teaching overloads, lack of academic mentorship and entrepreneurial role models, and poor research support infrastructure.

ENGINEERING, COMPUTER SCIENCES, MATHEMATICS, AND BIOLOGY

The overlap of engineering, computer science, biological sciences, and mathematics offers research opportunities. Engineering faculty have a varied and valuable background in industry, government, and academia. Research, while ongoing, is not the department's focus. The departmental faculty should agree on an area or two as research priorities and commit resources to them.

In departments such as mathematics, the leadership structure may present insurmountable obstacles to faculty wanting to become more involved in research. We have mentioned in other sections the processes by which changes could be made in chairmanships and deanships, and we believe UT-Tyler should consider similar approaches, such as rotating or replacing existing Deans and Chairs on a periodic basis to encourage new ideas and new approaches.

The master's program in engineering with areas of sub-specialization reflects UT-Tyler's strengths. An effective approach, it might be expanded to include the biological sciences and mathematics. Many computer science and mathematics departments, for example, now house computational biology programs. Connections with the UTHC-T should be pursued with such a goal in mind. But pursuing such goals would require the mathematics department to undertake an extensive hiring effort in statistics, biostatistics, and probability.

The math department should also pursue a joint plan for both research and expanded or enhanced undergraduate courses with the College of Nursing, the Computer Science Department, and the UTHC-T. To do so, it would have to retrain young mathematics faculty in areas related to the health sciences or engineering. Some faculty might be given training to qualify to hold joint appointments in these departments. A university with a relative small faculty and limited resources can develop a foundation for interdisciplinary research programs in this fashion without weakening its faculty's strong educational role with undergraduates. But UT-Tyler should also consider hiring a faculty member or two with a strong physics background who could teach undergraduate physics to augment the engineering or mathematics areas.

MATHEMATICS, SCIENCES, AND EDUCATION

The model mentioned above—involving several departments—may also be applied here. Such efforts might build on the current Teaching Excellence in Mathematics and Science (TEMS) program, which involves faculty from the College of Engineering and Science as well as the College of Arts and Sciences. The program aims to develop successful teacher preparation

programs for science and mathematics teachers, provides support programs for local teachers, and will assist in recruiting a more diverse group of students into the teaching profession.

Teacher preparation or teacher professional development should certainly remain a priority given the incredible need for mathematics and science teachers within this region, Texas, and the nation. Competitive funding from such federal sources as the National Science Foundation, the National Aeronautics and Space Administration, and the U.S. Department of Education (DOE) should be pursued to further enhance such initiatives.

Indeed, TEMS is the only federally funded activity we discovered in this area: It recently received an earmarked grant of \$348,000 from the DOE, and additional funding may be forthcoming. While earmarked funding will not make an institution competitive over the long term, it can provide capacity-building resources to assist in that process. With wise use of these funds, the university will have a foundation for future competitive proposals.

PARTNERSHIP WITH UTHC-T KEY TO UT-TYLER'S FUTURE

If this partnership can grow and mature, it will be one of the key forces in the future of UT-Tyler and will greatly expand opportunities for both research and educational excellence. UTHC-T's new director, Dr. Kirk Calhoun, has a vision for his institution and a first-rate staff to implement it in Steve Bidell, director of research, and Anne DeWitt, the chief nursing officer. Dr. Calhoun and Dr. Mabry and their leadership teams are working together to effect a meaningful collaboration. If collaboration with the health center succeeds, UT-Tyler's research program will be enhanced. We commend the outstanding leadership of both institutions for seeking and expanding this partnership, and applaud the recent decision by UT-Tyler and UTHC-T to develop a joint Institute for Biotechnology and Health Science. This institute—with joint faculty appointments and graduate degree programs, along with the added potential for collaborative research projects—can lead to enhanced opportunities for both institutions. -

We had discussions with and later received a letter from Dr. Calhoun (dated November 12, 2003) on the research directions at UTHC-T. They include childhood lung diseases, gerontology, pulmonary diseases, biotechnology, environmental sciences, molecular biology, and community health. Moreover, the health center plays an impressive role in educating and training the physicians, nurses, allied health professionals, and students, which should be strengthened. These areas, and the specific ones noted in Dr. Calhoun's letter, offer excellent opportunities for collaboration, including the UTHC-T centers or institutes that Dr. Calhoun's letter mentioned. For brevity, we will only note a small number.

- *Texas Lung Injury Institute*: Focus is on lung injury and repair. Strong record of external funding through NIH for several projects. Given the increase in the geriatric population of East Texas, its focus on aging patients would allow valuable partnerships.
- *Center of Pulmonary and Infectious Disease Control (CPIDC)*: Extensive education and outreach functions related to TB and other infectious diseases. Close ties with Texas Department of Health and local hospitals. Opportunities for expanded protocols and joint research on identifying new therapeutic targets to treat TB and atypical mycobacterial diseases. It seems worthwhile to expand this area given national security concerns about the transmission and management of infectious diseases such as anthrax and smallpox.
- *Southwest Center for Agricultural Health, Injury Prevention, and Education*: One of the 10 agricultural education centers with funding from NIOSH. Has community health focus and could work closely with several UT-Tyler outreach programs.

- *East Texas Center for Rural Geriatric Studies*: Designated by Texas in 2003, this center will focus on numerous aspects of aging. It will provide collaborative opportunities for faculty in nursing, the sciences, several social science areas, and areas that employ innovative technologies. Support from the UT System for both UTHC-T and UT-Tyler to hire joint faculty, possibly a senior, research-oriented geriatrician, would boost external funding possibilities for this new effort.

New hires that could serve in joint capacities in areas such as epidemiology, statistics, biology, and biochemistry would provide a strong foundation for such collaborations. Improved use of existing mathematics and other faculty could also assist in these areas. Partnerships might, for example, lead to an experimental program that brings post-doctoral students to UTHC-Tyler for research with the promise of full-time tenure-track positions at UT-Tyler after some period and assuming they meet certain other qualifications. Creating such an opportunity could help recruit research staff, provide them opportunities for limited teaching, and move them into faculty lines with their research career well established. The disciplines in which recruiting is successful—potentially joint recruiting—will determine which of the areas below should be given top research priority.

Our meetings with faculty and Dr. Calhoun's letter suggest collaborations might also prove highly productive in these areas:

- Cystic fibrosis and childhood lung diseases, areas of expertise for UTHC-T
- Community health epidemiology and minority health disparities. NIH made them funding priorities, and UT-Tyler has efforts underway in both areas.
- Cell aging and blood coagulation and clotting
- Evidence-based practice that allows UT-Tyler's talented and innovative nursing faculty to become more involved with training and development of hospital staff

Specific areas that could be explored include bioengineering, biostatistics, mathematical biology (epidemiology, immunology, genetics, and physiology), environmental sciences and genomics (including connections to ecology and systematics), public health, clinical psychology, and community health. UT-Tyler should consider recruiting a senior cell biologist or molecular biologist to enhance some of these research capacities.

Further, the research park being considered near UTHC-T will be a magnet for research growth and has substantial local economic development potential. Such investments would make it possible to create numerous research and training projects and programs with UTHC-T.

In addition, UT-Tyler should establish partnerships with the East Texas Center for Biotechnology and Information Technology Education.

The success of the UT-Tyler/UTHC-T partnership, however, will largely determine whether UT-Tyler advances in research and improves its trademark undergraduate offerings as well as its exemplary program in nursing, its community health programs (including the East Texas Rural Fiscal and Physical Outreach Program), and the presently ill-fated human resource development Ph.D. program. We should add that this latter Ph.D. proposal was an outstanding sustained effort to collaborate with another institution to increase UT-Tyler's academic capacity, integrate several disciplines into the proposal, and give the UT-Tyler/UTHC-T partnership a strong program through which to train new hospital and health professionals. We hope that the coordinating board will reconsider this decision. The HRD doctoral program would generate

immediate demand and produce graduates who are a commodity nationally in the health management field.

More than that, this collaboration could be a model for how health centers located near universities can engage in biomedical research, education, and training rapidly and efficiently. It could also dramatically improve both the medical center and UT-Tyler. Our group urges the Regents to charge UT System's new executive vice chancellor for health affairs with overseeing the medical centers in the system and reviewing this collaborative opportunity.

COLLEGE OF NURSING AND APPLIED HEALTH

The most innovative college we visited was the College of Nursing and Health Sciences. It is a national leader in long-distance and web-based education. The creativity and enthusiasm of the nursing faculty were among the highlights of our visit. The faculty members want to publish more and become better known. This area deserves considerable credit for its accomplishments—both in research and educational delivery systems—and should be further supported. It is one of the outstanding programs of its kind in the country.

It is critical that UT-Tyler find a way to provide tangible release time to selected members of this college so that their creativity can flourish and remain at the cutting edge of teaching and educational research. UT-Tyler should strengthen the M.S. programs here and carefully examine the impact that competitive support to graduate assistants for both teaching and research could have. UT-Tyler should also find a way to provide enhanced library support, additional faculty, and competitive assistantship support to this faculty. Their relationship with the business program and the local clinics provides a great starting point for an innovative research program on community health.

Given the faculty's level of teaching responsibilities, it may be a serious challenge to develop a Ph.D. program. In fact, pursuing this program immediately might harm the outstanding quality of the undergraduate and master's programs. This should not be allowed to happen, as this program and its innovative use of technologies are educational gems. But collaborations with other nursing programs around the state might provide faculty with the needed time to plan effectively for further advanced degrees.

New Opportunities for Potential Expansion

UT-Tyler could become a key undergraduate university for East Texas and the state if it gave appropriate emphasis to strengthening already-strong undergraduate programs and focused on selective master's degree areas and limited Ph.D. programs. We would summarize our view of the major opportunities for UT-Tyler as follows:

- First, develop a major collaboration with UTHC-T. The high quality of leadership and personal chemistry between Presidents Mabry and Calhoun are crucial to success in this area.
- Second, in collaboration with the UTHC-T, nursing could contribute greatly in educational, training, and research areas. The University and the UT System should expand this effort by adding faculty, support services, and funding. Because of its strengths, we encourage the nursing program to seek numerous collaborations with other universities as well as UTHC-T.

- Third, UT-Tyler must continue to emphasize undergraduate teaching and balance the growing pressures to become more research intensive. At the same time, we commend the work to develop the new Ph.D. program in HRD and hope it will eventually receive approval from the Coordinating Board.
- Fourth, UT-Tyler should pursue collaborations outside UTHC-Tyler to provide opportunities for its students to spend summers conducting research at larger, research-intensive partner institutions. Partnerships could be sought, for example, with nearby Historically Black Colleges and Universities, an arrangement that would allow UT-Tyler faculty to compete for sheltered funding (lacking the HSI designation that some of the other developing institutions have) and create an opportunity to attract minority students to study in Tyler. This latter opportunity would help redress the minority student shortfall in UT-Tyler's enrollment. UT-Tyler can also develop partnerships with institutions such as UT-Dallas and Arlington—for example, feeding them good undergraduates for their growing graduate programs. The UT System might assist in this partnership.
- Finally, UT-Tyler urgently requires a strategic planning effort that re-affirms the priorities of developing the best undergraduate programs possible along with the pursuit of selected master's and Ph.D. programs.

Junior Colleges: The Missing Partner

As an upper-division college, UT-Tyler depended on junior colleges for students. Its continuing evolution into a university makes quality and quantity of transfer students a major issue. If UT-Tyler hopes to become a premier undergraduate educational institution, it must forge new relationships with local junior colleges.

In the materials we received prior to our visit, the list of “Major Collaborative Projects for UT-Tyler” did not include a collaborative initiative with local junior colleges. (After our visit, we did receive a proposal that involved junior colleges.) The only reference to community colleges came from faculty who mentioned the uneven preparation of students who transfer from community colleges.

As UT-Tyler accepts more first-time-in-college students as incoming freshmen, it must work from a full understanding of the quality and quantity of its transfer students. It receives many such students. It needs as quickly as it can possibly be generated an analysis of these students and a plan of action to address related issues and faculty concerns.

Better partnerships between UT-Tyler and the local junior colleges could impact local economic development. Already, some efforts seem to be underway, involving technician training in areas related to software engineering, IT project implementation, computer science, and biotechnology. These efforts could evolve into effective partnerships between UT-Tyler, the junior colleges, the East Texas Workforce Center, and the private sector.

In many parts of Texas and indeed the nation, junior colleges are significant partners in helping communities formulate and implement plans for economic development. Moreover, junior colleges across the country are preparing technicians to work in biotechnology areas as part of a group called Bio-Link, Advanced Technological Education Center for Biotechnology. This NSF Center of Excellence is housed at City College of San Francisco. It might be instructive to review its programs and activities as planning for the East Texas Center progresses.

As previously mentioned in the discussion of UTB/TSC, the relationship between Arizona State University (ASU), the Maricopa Community Colleges, and economic development interests in Arizona is a specific example of a productive partnership with junior colleges. For years, the Phoenix area has been a force in manufacturing computer chips with the semi-conductor manufacturing industry. Companies such as Intel and Hewlett-Packard operate “fabs” that employ thousands of engineers, scientists, and technicians. The research capacities of ASU faculty in engineering, chemistry, biology, nano-technology, and other fields have provided intellectual capital to help support the state’s semi-conductor industry. A key to strengthening the educational offerings of this partnership was the Maricopa Advanced Technology Education Center, one of the national Centers of Excellence funded by the NSF. This center might be an interesting model to review.

The UTHC-T also has a biotechnology component that provides some training and a certificate for biological technicians that could include junior colleges. While this component supports the recommendations of Governor Rick Perry’s Biotechnology Council, and while we heard from the community group about the emphasis the Tyler Economic Development places on creating biotechnology jobs in this area, UT-Tyler should revamp the H-1B proposal currently being considered with other economic development groups and use it to create a true partnership between the university, the junior colleges, UTHC-T, and the community.

Significant Opportunities for Economic Development

One of the most exciting prospects of collaborating with UTHC-T is the community discussion about creating a 120-acre biotechnology research park, serviced by State Highway 155 and I-20 and adjacent to the UTHC-T facility. The long-term plan calls for constructing almost a dozen buildings in the 40-50,000-square-foot range as well as an incubator facility. This park, located next to UTCH-Tyler (with its 1,200 employees) would take advantage of a growing partnership in various research areas. As the partnership matured, the Bioscience Research Park could provide much needed space for corporate and other development activities to continue research progress and contribute to job development in Tyler and East Texas.

Another significant possibility for job creation that we heard about during our visit related to the L-3 Communications Integrated Systems (L-3 CIS), headquartered in Greenville, Texas. The Greenville facility, located within driving distance of Tyler, has about 3,000 employees. Of those, more than 600 are engineers who focus on a variety of intelligence, surveillance, and reconnaissance (ISR) systems and products; secure communications systems; avionics and ocean products; training devices and products; microwave components and telemetry instruments; and space and navigational products. Many of the products or services are provided for the Department of Defense, the Department of Homeland Security, or other defense and intelligent agencies and companies. Discussions regarding potential collaborations are underway between L-3 CIS and UT-Tyler’s College of Engineering faculty. Collaborative research might emerge from working with the L-3 CIS BAA (Basic Agency Agreements) Review Board to identify potential joint federal research projects for funding, and by working with L-3 CIS engineers in the areas of signal detection and identification, mathematical modeling and computer simulations, software engineering, systems engineering, aircraft electrical power distribution, and heat transfer. There have also been discussions between UT-Tyler and L-3 staff about a cooperative program for students to work and study in areas such as electrical, mechanical, and civil engineering, and about training and degree programs for L-3 CIS employees. There also might be some consideration of L-3 engineers serving in an adjunct faculty role at UT-Tyler.

This partnership could provide engineering and computer science faculty and students with valuable research opportunities, summer internships for students, placement potential when students graduate, training and degree programs for L-3 employees, and adjunct faculty for the university. It is worth pursuing aggressively.

Tyler and Smith Counties are the largest and most significant population centers in this part of the region. The population that is 18 years of age or older—the primary age for employment—in East Texas exceeds 550,000, or almost 75 percent of the total East Texas population. It is estimated that the East Texas Workforce Development Area will increase by over eight percent by 2010 and more than 16 percent by 2020. This demographic and population growth provides the human capital, if properly trained and educated, for employers who would see East Texas as an area for economic growth and expansion in high-technology areas.

Other Issues to Be Addressed

IMPACT OF STUDENT POPULATION GROWTH

UT-Tyler must determine how it can carry out an expanded research program at a time when double-digit growth rates in undergraduate enrollment create tremendous demand for teaching faculty. Exacerbating this situation is the view of some faculty who see the institution's teaching mission as predominant almost to the exclusion of acknowledging an appropriate role for research activities. A few senior faculty members see the pressures for more teaching hours as an obstacle for research while others, particularly some in the humanities, feel dual pressures to increase research while maintaining their hallmark excellence in undergraduate teaching. Student population growth and the development of courses such as the freshmen seminar have placed added constraints on the faculty's ability to increase research activities. While there is little doubt that such a critical thinking and writing course is essential, its implementation has simply overwhelmed the humanities faculty and several other groups as well. UT-Tyler should review its impact on teaching loads and consider changes from current practice.

LACK OF UNDERGRADUATE RESEARCH

The lack of both undergraduate and graduate students to engage in research severely limits UT-Tyler's research prospects. The external funding environment for supporting research is becoming increasingly more competitive. Only the addition of strong undergraduate and graduate students to conduct the research with faculty will allow UT-Tyler to build research where it chooses to do so. As UT-Tyler students conduct more research with faculty, they will be stronger candidates for any graduate program at major research universities. A laudable goal UT-Tyler could set for itself might be to serve as an outstanding regional undergraduate university and strive to become an important feeder institution for those selected students who wish to pursue a post-baccalaureate research-oriented graduate program.

Research activities often cluster around several strong research faculty in one or more disciplines. At major research-intensive universities, such research centers are not simply created. Instead, they emerge from groups of faculty who write joint proposals and get their proposals funded. The development of research efforts that compete for funds and then establish centers around funded research or interdisciplinary graduate programs must become the established procedure at UT-Tyler in its selected areas of research strength or potential.

Actions That Could Strengthen Research and Education Efforts

The University, the UT System, or both should undertake a number of actions in the near future, including the following:

- UT-Tyler faces continued growth for the foreseeable future. We discussed some of those trends earlier in this report. Given the opportunities that exist to hire additional faculty, we recommend creation of an internal committee with several key external members to assess the priority areas for UT-Tyler and recommend to the Provost and the President how faculty lines should be allocated among these priority areas to enhance both research and education, including new educational emphases and undergraduate curricula offerings as outlined above. The priorities have evolved from the selected opportunities for significant research growth and should be balanced with the need to dramatically reduce the teaching loads in order to strengthen the educational offerings in key undergraduate areas.
- We have noted the changing undergraduate student body at UT-Tyler and how the junior colleges contribute to the number and quality of upper-division students. The University needs an immediate review and plan of action in this area. Discussions should involve faculty, students, community leaders, and junior college administrators/faculty.
- The planning effort should include a careful review of how UT-Tyler can become a regional university, serving East Texas and beyond. The University should seek to augment research at the undergraduate, graduate, and faculty levels, while enhancing UT-Tyler's tradition of outstanding undergraduate instruction and learning.
- Space is required for teaching and research. Immediate attention should be given to the design of the new engineering and science building. Dedicating space for research laboratories can be justified on strategic grounds but not on the basis of current research activity.
- Start-up costs for new faculty engaged or wishing to engage in research should be sought. This should include appropriate financial resources as well as release time to initiate or continue an active research program. Release time from teaching should be provided to recognize research potential or accomplishment as well as to develop a distinctive undergraduate course. The institution should review how the freshman seminar is counted as part of an instructor's teaching load and reconsider the practice of treating it as an add-on assignment.
- The University should institute a review of class size and available and potential instructional space and develop a plan for selectively hiring faculty to strengthen the undergraduate curriculum and opportunities for undergraduate research, reducing class size as appropriate in certain areas.
- The University should seek out opportunities for increased undergraduate and graduate research activities, including developing competitive levels of support for assistantships and internships.

- The University's curriculum committee should review how such critical components of an undergraduate curriculum that are currently lacking (such as physics and economics) can be provided by other departmental faculty as part of the efforts to enhance the UT-Tyler educational experience. Some physics at the undergraduate level is critical if UT-Tyler is to become a viable feeder institution in the sciences to outstanding graduate universities.
- The University should review existing master's degree programs to determine if any others might need to be added, consistent with the research priority areas proposed in this report. For example, chemistry might be a candidate for a master's degree in light of the collaboration with UTHC-T. We repeat, however, that a major expansion of master's degree programs into many more areas is not the intent of this recommendation.
- Successful closure of the search for a new Provost. This is one of the most important hires the university will make for the foreseeable future. This individual must have a broad understanding of both teaching and research activities in higher education, sufficient research experience to understand what is necessary for faculty to conduct substantive research, and a vision of how to move the university toward research excellence in selected areas. An individual with an academic background in the sciences would complement the business background of President Mabry. We encourage the UT System to watch this selection carefully.
- The research infrastructure must be strengthened. This should include hiring individuals who can identify opportunities and more generally assist faculty in preparing proposals and facilitating administrative activities related to purchasing, billing, etc. Consider joint activities with UTHC-T in this arena. It is worth considering as well adding grant-writing capacities to the academic units with the most potential.
- The deans and Provost should review each of the department chairs and consider rotating chairs to bring in new perspectives and views. Also, include younger faculty on important institutional and departmental committees involved with curricula and recruiting, as a means of grooming them for eventual academic leadership positions.
- UT-Tyler should carry out an aggressive recruitment and retention effort, including strong academic and personal support with a robust financial aid effort, to add significant racial/ethnic diversity to the student body. Such an effort would also increase the college-going proportion of students attending college in the East Texas region. As the region is home to a significant percentage of the state's African American population and to a growing percentage of the state's Hispanic population, UT-Tyler can and should do better in this regard.

How Might UT-Tyler Look in Five Years?

Over the next five years, we see the student population at UT-Tyler approaching 6,000 students. An increasing number of the new freshmen arrive at UT-Tyler for their first college experience. More are seeking opportunities to reside on-campus to take advantage of the growing number of campus-centered activities. The campus has grown and expanded in size as more space was designated for residential housing developments, and the new focus on making UT-

Tyler one of the best undergraduate experiences available anywhere for the cost is well-received. Efforts to increase the availability of financial aid for undergraduates have paid dividends and more students are able to take full-time academic loads. Many are being drawn from more diverse backgrounds and finding increased opportunities for involvement in undergraduate research activities. This development is only now showing itself in the rising number of science and engineering majors, as well as the rising number of students exploring graduate opportunities in their majors at UT-Tyler and other universities across the state and beyond.

The campus is teeming with new construction, including new residence halls, a new building with instructional state-of-the-art technology, and substantial new research space for the growing science faculty collaborating in biomedicine with UTHC-T. A new building nearing completion at the UTHC-T campus has substantial research space for UT-Tyler faculty with joint appointments in a number of the academic areas; faculty are working closely with their medical center colleagues on new federally-supported research projects. Research activities at UT-Tyler are expanding and springing up in disciplines across the campus. Undergraduates have become more heavily involved in campus activities and research and receive support from major grants at UTHC-T, and many of these research activities are subcontracted to UT-Tyler. New federally funded training initiatives have begun, and UT-Tyler's nursing program training dozens of nurses and re-training nurses across the state via the new technologically advanced training center at the UTHC-T campus. New opportunities for research and internships are developing with small biotechnology companies emerging near the health center complex.

Yet the hallmark of this fine university is its pride and success in producing the high-quality undergraduate student who, upon graduation, contributes to East Texas in many ways or increasingly opts to pursue additional academic work at some of Texas' and the Southwest's finest research universities. They strengthen the local economy and the strong future of Texas and its citizens.

APPENDIX 1

SCOPE OF WORK

The Consultant shall perform the following Work in connection with the development of a detailed plan (the “Plan”) to significantly expand the research capabilities of the following eight (8) academic institutions (the “Institutions”) of the University:

Group A

The University of Texas at Arlington
The University of Texas at Dallas
The University of Texas at El Paso
The University of Texas at San Antonio

Group B

The University of Texas at Brownsville
The University of Texas – Pan American
The University of Texas of the Permian Basin
The University of Texas at Tyler

In accordance with Section 4.d. of this Agreement, Consultant shall assemble two teams of individuals to perform the Work:

- One team, composed of seven or eight members, shall conduct and supervise the Work at the Group A Institutions.
- A second team, composed of six members, shall conduct and supervise the Work at the Group B Institutions.
- Team members shall include nationally recognized leaders with demonstrated competence, knowledge and experience in developing research capabilities for scientific, technological or higher education enterprises.

Consultant, through its teams, shall:

- Review background information provided by the Institutions as well as information developed independently, and shall request additional information from Institutions as the Work progresses.
- Visit Institutions during September 2003, October 2003, November 2003, December 2003 and January 2004. Analyze and evaluate the information gathered and formulate strategies to significantly expand the Institutions’ research capabilities.
- During January 2004 and February 2004, both teams shall identify their major findings and conclusions, answer questions in this Exhibit, and provide recommended strategies and tactics for using current resources to greater effect and for future development of the Institution, and for significantly expanding the Institutions’ research capabilities, in light of constraints and opportunities described in this Exhibit.

Consultant shall include the following work product in the Plan:

- 1) A set of strategies and tactics for using current resources to greater effect and for future development of each Institution.
- 2) Highly focused solutions to significantly expand the research capabilities of each Institution that are aligned with national and state research priorities.

Consultant shall address the following questions concerning each Institution in the Plan:

- 1) What are the current research strengths of the Institution?
- 2) What are the possibilities for further expansion of the research profile at the Institution, using its existing strengths?

- 3) What are the next high-opportunity research areas that the Institution could develop? Explicit recommendations concerning numbers of faculty, target departments, and specific disciplines or sub-disciplines shall be addressed.
- 4) What are the additional resources that the Institution needs to pursue its high-opportunity research possibilities? Specifics of support personnel, graduate students, space, and equipment shall be provided.
- 5) In what order should actions be taken to develop research at the Institution? What is the set of priorities, and why are these the priorities? What is a likely time frame for the research enhancement?
- 6) Are there partners (local, state, or national) who could help the Institution increase its research profile?

Consultant shall address the following questions for the group of Institutions as a whole in the Plan:

- 1) To what extent do the strengths of the Institutions overlap?
- 2) Are there obvious opportunities for collaboration among the Institutions that should be pursued?
- 3) Are there shared resources that should be developed for the Institutions?
- 4) What are the high potential possibilities for collaboration with a nearby medical or health science campus?

Consultant shall address the following constraints in the Plan:

- 1) Each Institution's enrollment is expected to grow. Largest growth is anticipated at U.T. Arlington and U.T. San Antonio. With the exception of U.T. Dallas, the Institutions do not currently pursue selective admissions policies. The pressure of enrollment, however, may lead to greater selectivity at all campuses over the next five years.
- 2) The principal basis for state appropriations is formula funding, based on semester credit hours of instruction, with a two-year lag. The formula provides additional funding for graduate and upper-division courses, and the formula also funds engineering and science courses at a higher rate. Because of the lag in formula funding, increased growth will not pay for itself in the short term.
- 3) The State faces a current revenue shortfall of approximately \$9 billion. Part of this shortfall will be met with a budget cut in appropriated funds. Even when the economy improves, it is not realistic to expect substantial increases in state appropriations.
- 4) Although six of the Institutions are entitled to share in the proceeds of the Permanent University Fund ("PUF") endowment, recent losses in the stock market make additional distributions from the PUF unlikely in the short term.
- 5) Current State law does not permit the University to waive tuition for graduate students. Research and teaching assistants who are appointed at least half time have been eligible to pay resident (in-state) tuition, and, were eligible for staff benefits, including health benefits. Recent legislative changes impact this eligibility. Funds available for graduate fellowships are quite modest.

Consultant shall address the following opportunities in the Plan:

- 1) The local communities are very supportive of the Institutions.
- 2) There may be philanthropic support from foundation or individuals for research expansion.

- 3) The Texas Legislature recently deregulated tuition. Authority for setting tuition, for the first time, will be delegated to the Board of Regents, allowing for a more differentiated tuition structure.
- 4) The state legislature recently approved legislation that will allow the Institutions to retain all of their indirect costs reimbursements. Formerly, these Institutions were permitted to retain only 50% of their indirect costs.
- 5) There is a possibility of some special item funding from the Governor's Office.

In addition to the forgoing questions, constraints and opportunities, the Consultant shall identify and respond to any additional issues relevant to the specific challenges of each Institution.

Further, the following questions were posed for each of the developing institutions:

The University of Texas at Brownsville/Texas Southmost College:

- What are the next steps UTB/TSC should take to improve its educational effectiveness with its current student body?
- What are the most promising academic areas for research expansion or for research collaboration with other institutions?
- What are the next academic degree programs that should be developed for UTB/TSC?
- How can UTB/TSC best align itself with opportunities for economic development in South Texas?

The University of Texas – Pan American:

- What academic areas are appropriate for the next doctoral-level program?
- UTPA has identified four areas of regional significance for academic focus. These areas are bilingualism; biomedical sciences and engineering; border life and international relations; and subtropical environment and ecology. Are these appropriate areas? Are other areas equally suitable or more promising?
- What academic or professional areas best align with further economic development in the South Texas area?
- What steps should UTPA take next to improve its effectiveness in educating its distinctive student body?

The University of Texas of the Permian Basin:

- What are the next steps UTPB should take to improve its educational effectiveness with its current student body?
- What are the most promising academic areas for research collaboration with other institutions, such as Odessa College or the other institutions within the UT System?
- What are the next academic degree programs that should be developed for UTPB?
- How can UTPB best align itself with opportunities for economic development in West Texas?

The University of Texas at Tyler:

- What are the next steps UT-Tyler should take to improve its educational effectiveness with its current student body?
- What are the most promising academic areas for collaboration with the University of Texas Health Center-Tyler?
- What are the next graduate and professional degree programs that should be developed for UT-Tyler?
- How can UT-Tyler best align itself with opportunities for economic development in East Texas?

APPENDIX 2

THE WASHINGTON ADVISORY GROUP TEAM

Dr. Raymond Bye has spent his career at the NSF and Florida State University (FSU) in areas related to scientific and engineering research, research administration, U.S. science policy, and legislative and public affairs. Beginning in 1972, he served over two decades at the NSF, with more than a dozen years as director of the Office of Legislative and Public Affairs. Following his service at NSF, he was named associate vice president for research at FSU in 1994. In 1999, he was named interim vice president for research and, after a national search, was named FSU's vice president for research in 2000. In that position, his responsibilities included sponsored research administration, technology transfer activities, the FSU Research Foundation, oversight of research regulatory issues, research communications programs, and several interdisciplinary research programs (such as the National High Magnetic Field Laboratory, the FSU Center for Advanced Power Systems, the Institute for Science and Public Affairs, and the FSU Marine Laboratory). In June 2003, FSU's new president asked that he assume expanded federal relations responsibilities along with leading the university's activities related to economic development. In this capacity, he serves as the lead university official in all federal and Congressional relations activities. Dr. Bye has served on a number of boards and commissions, including as president of the FSU Research Foundation; a member of the Oak Ridge National Laboratory Board of Governors and the Board of Oak Ridge Associated Universities; Chair of the National Association of State University and Land-Grant Colleges' (NASULGC) Council on Governmental Affairs; and as a member of the Board of Directors for the NASULGC. Dr. Bye has received a number of awards, including the NSF Distinguished Service Award and the President's Meritorious Executive Award.

Dr. Raúl Cárdenas served as vice chancellor for student development and community affairs for the Maricopa Community College District in Phoenix, Arizona prior to his recent retirement. He is the immediate interim chancellor of the district, the past president of Paradise Valley Community College and the founding president of South Mountain Community College, both in the Maricopa system. His active retirement assignment with the Maricopa Community College District will have him working at the Mesa and Scottsdale Community Colleges. His professional career spans three decades and all levels of education—as an elementary, junior high and high school teacher, a high school vice principal and community college dean of students in El Paso, and as an assistant vice chancellor for student affairs at the University of California at Berkeley. Dr. Cárdenas' participation in national organizations is quite extensive and includes having served as member of the Board of Directors for the American Association of Community Colleges and the American Council on Education; member of the President's Academy Executive Committee of the American Association of Community Colleges; chair of the Executive Committee of the Hispanic Association of Colleges and Universities; and member of the American Council on Education Commission on International Education. He is currently a member of the Coordinating Council for the Hispanic Border Leadership Institute, Executive Committee of the International Consortium for Education and Economic Development, Fundación Solidaridad Mexicano Americana, and other higher education organizations. Dr. Cardenas received his M.Ed. from the University of Texas-El Paso, and a Ph.D. in educational administration/student personnel from the University of Arizona.

Dr. Carlos Castillo-Chavez, a native of Mexico who immigrated to the U.S. 28 years ago, holds joint appointments in the Departments of Statistics, Biological Statistics and Computational Biology and Theoretical and Applied Mechanics at Cornell University, where he is also a member of the graduate fields of applied mathematics, biometry, epidemiology, ecology and

evolutionary biology, statistics and theoretical and applied mechanics. In 1996 he established the Mathematical and Theoretical Biology Institute (MTBI), which fosters research activities primarily among underrepresented minority undergraduate students who are enrolled at non-selective U.S. universities, but also mentors and supports underrepresented minority undergraduate and graduate students from various universities who are working in the mathematical or statistical sciences. He received a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring in 1997, in part, for the work that he carried out at MTBI. In 1997 he founded the Cornell-Sloan fellowship program in the mathematical and statistical sciences at Cornell University, a program that he has directed ever since. Dr. Castillo-Chavez has received various awards including two White House Awards (1992 and 1997), a QEM Giant in Science Mentoring Award (2000), and SACNAS distinguished senior scientist award (2001). In addition, he was named Profesor Plenario by the Universidad de Belgrano (Argentina, 1996); and held a Catedra Patrimonial by the Institute of Applied Mathematics (IIMAS) at National University in Mexico (UNAM, 1998). He was selected as the 2003 Ulam Scholar by the Center for Nonlinear Dynamics (CNLS) at Los Alamos National Laboratory. He has published over one hundred research articles, edited four volumes, and co-authored a textbook on mathematical biology with Fred Brauer (2001).

Dr. Thomas Winston Cole, Jr. served as the first president of Clark Atlanta University from 1989 until his retirement in 2002, after serving simultaneously as president of both Clark College and Atlanta University prior to their historic consolidation. Previously, he was chancellor of the West Virginia Board of Regents, the second and one of only four African Americans to head a state system of public higher education, and had served as president of West Virginia State College. Prior to these appointments, he taught at Atlanta University where he was chairman of the Department of Chemistry, Fuller E. Callaway Professor of Chemistry, and provost and vice president for academic affairs. He also served as director of the Atlanta Resource Center for Science and Engineering, the first of three centers established in the United States by the National Science Foundation. Nationally recognized for his scholarly contributions to science and his leadership in higher education administration, Dr. Cole has served as chairman of the Council of Presidents of the Member institutions of the College Fund/UNCF; chairman of the Council of Presidents for the College Fund, the Atlanta University Center; and the Black College Fund of the United Methodist Church. He currently serves as the chair of the Board of Directors of the Quality Education for Minorities (QEM) Network, and holds memberships on the Executive Committee for Project Kaleidoscope, and the General Board of Higher Education and Ministry of the United Methodist Church. He is a past member of the Executive Council, Commission on Colleges, Southern Association of Colleges and Schools. A Texas native and graduate of Wiley College, Dr. Cole has been awarded numerous honors in recognitions of his scientific, educational and community contributions.

Dr. Shirley McBay assumed the position of president of the Quality Education for Minorities (QEM) Network in July 1990, following ten years as dean for student affairs at the Massachusetts Institute of Technology (MIT) and three years as director of the QEM Project, an MIT-based initiative supported by the Carnegie Corporation of New York. Previously, she served as a program manager/director in the Science Education Directorate of the NSF, where she directed two national programs designed to increase minority participation in science and engineering. Prior to joining NSF, she spent 15 years at Spelman College, including as professor of mathematics, department head, division chair, and associate academic dean. At QEM, Dr. McBay has served as the director of several science and engineering-focused projects. These include NSF-supported projects focused on states with significant minority populations, the Historically Black Colleges & Universities (HBCU)-Undergraduate Program, the Math and Science Partnership Program, and the Faculty Early CAREER Development Program; faculty

development projects, including the Teagle Foundation-supported Scholarly Productivity Projects for Science and Engineering Faculty at HBCUs and the NASA-supported Scholarly Technical Assistance Project for Principal Investigators of NASA's Faculty Awards for Research Program; the Annenberg/CPB Math and Science Project-supported Minority Mathematics and Science Teacher Leadership Corps; the NSF- and NASA-supported Summer Science Internship Program for undergraduate and graduate students; NASA's residential Summer High School Apprenticeship Research Program (SHARP PLUS); and the GE Fund-QEM Seamless Pathway Project, a pilot initiative in three low-income areas offering a continuum of support for talented mathematics and science students, from middle school to college.

Dr. Alfredo G. de los Santos, Jr. has served as research professor at Arizona State University and as a Senior League Fellow of The League for Innovation in the Community College since his retirement as vice chancellor for student and educational development at the Maricopa Community Colleges. During the 1990s, Dr. de los Santos was principal investigator for a number of grants funded by the NSF, including the Phoenix Urban Systemic Initiative (\$15 million) and the Maricopa Advanced Technology Education Center (\$5 million). He is the founding president of El Paso Community College and served as a dean at Northampton County Community College (PA) and Florida Keys Junior College (FL), and as a librarian at Laredo Junior College (TX). Dr. de los Santos serves on the board of trustees of the Tomas Rivera Policy Institute, Jobs for the Future Inc., National Center for Public Policy and Higher Education, and the Council for Higher Education Accreditation. He is co-principal investigator for two programs funded by the NSF, including the Technical Education Initiative at the Accreditation Board for Engineering and Technology. He has served on the board of the Carnegie Foundation for the Advancement of Teaching, the American Association of Community Colleges, the American Association for Higher Education, the American Council on Education, the United States Open University, and the College Board, among others. He is the recipient of numerous honors and awards, including recognition by the American Council on Education, McGraw-Hill, the Hispanic Association of Colleges and Universities, and the National Science Foundation. Dr. de los Santos earned his associate of arts degree from Laredo Junior College and B.A. (English), M.L.S. and Ph.D. (educational administration) degrees from the University of Texas at Austin.

Joe B. Wyatt is a WAG principal who advises on strategic planning and governance in academia, management and planning of academic R&D organizations, and corporate-academic partnerships. He is chancellor emeritus of Vanderbilt University, having served as chancellor from 1982 to 2000. As chancellor, Mr. Wyatt led Vanderbilt's ascent into the top tier of U.S. teaching and research universities, overseeing the expansion of the university's academic offerings and diversity of the student body and the increase of Vanderbilt's endowment from \$170 million to more than \$2 billion. Previously, Mr. Wyatt was a member of the faculty and administration at Harvard University, serving as vice president for administration from 1976 to 1982. During this period, he led EDUCOM, a consortium of 450 universities that developed computer networks and systems for sharing information and resources. In addition Mr. Wyatt co-authored the book, *Financial Planning Models for Colleges and Universities*, and wrote extensively in the fields of technology, management and education. He has conducted research for the NSF, the Ford Foundation, the Office of Naval Research, and the Eli Lilly Foundation, among others. He is a patentee and consultant in computer system design and computer networking. Mr. Wyatt co-founded the Massachusetts Technology Development Corporation in 1978, a public venture capital group that has financed a large number of successful technology-based companies in Massachusetts. He is currently chairman of the board of the Universities Research Association of Washington, DC and chairman of the Government University Industry Research Roundtable of the National Academy of Sciences. He holds degrees in mathematics from Texas Christian University and the University of Texas at Austin.

APPENDIX 3

CHRONOLOGICAL SITE VISITS

I. University of Texas-Pan American (October 1-3, 2003)

Site visitors from the Washington Advisory Group:

Mr. Joe Wyatt, Team Leader	Dr. Carlos Castillo-Chavez
Dr. Raymond Bye, Jr., Coordinator	Dr. Thomas W. Cole
Dr. Raúl Cárdenas	Dr. Shirley McBay

Visit Overview:

Joe Wyatt, a principal of The Washington Advisory Group, led the site visit to UTPA. The group included a coordinator, Dr. Raymond Bye, and the four additional consultants listed above. The team at times divided into two subgroups (not always including the same individuals at each meeting), which conducted interviews with 14 different groups during the visit. We drew these groups primarily from faculty in a range of academic disciplines. We conducted a special interview with a large group of students involved in research (both graduates and undergraduates). In addition, we had working dinner discussions with deans as well as both initial and final meetings with the university's leadership (the president and several members of his leadership team).

II. University of Texas-Tyler (October 27-29, 2003)

Site visitors from the Washington Advisory Group:

Mr. Joe Wyatt, Team Leader	Dr. Thomas W. Cole
Dr. Raymond Bye, Jr., Coordinator	Dr. Alfredo G. de los Santos, Jr.
Dr. Carlos Castillo-Chavez	Dr. Shirley McBay

Visit Overview:

After a review of the relevant materials provided by UT-Tyler, our team, led by Joe Wyatt, visited the campus October 27-29, 2003. The group included a coordinator, Dr. Raymond Bye, and the four additional consultants listed above. The group met with 16 distinct groups and conducted our meetings and discussions either as an entire team or in two subgroups. We drew the 16 groups primarily from faculty in a broad selection of academic disciplines. We also included undergraduate and graduate students in many of the discussions. In addition, we had working dinner discussions with deans and with the president and his vice presidential team. We also had an opening meeting with the president and several members of his leadership team. Because of a commitment in Austin, President Rodney Mabry was not on-campus on the day of our departure. Mr. Wyatt and Dr. Bye conducted a final telephone de-briefing with the president several days later (November 5). Our conclusions and recommendations are based on this single visit, as well as materials received before and afterward.

III. University of Texas-Brownsville/Texas Southmost College (December 1-3, 2003)

Site visitors from the Washington Advisory Group:

Mr. Joe Wyatt, Team Leader	Dr. Carlos Castillo-Chavez
Dr. Raymond Bye, Jr., Coordinator	Dr. Thomas W. Cole
Dr. Raul Cardenas	Dr. Shirley McBay

Visit Overview:

Mr. Joe Wyatt led our team on this visit. The team was composed of its coordinator, Dr. Raymond Bye, and the four additional consultants listed above. The group met with 14 distinct groups and conducted the meetings and discussions either as an entire team or in one of our two subgroups of three consultants. These UTB/TSC groups consisted primarily of faculty drawn from a broad selection of academic disciplines. In addition, we had a meeting with a community-based group of leaders. We had working dinner discussions with the deans and another with the President Juliet García and Provost José Martín and several of her board of trustee members. In addition, we had an opening meeting with the university leadership, including the president and provost. On the last day of our visit, we held a final debriefing with President García and Provost Martín.

IV. University of Texas at the Permian Basin (December 17-19, 2003)

Site Visitors from the Washington Advisory Group:

Mr. Joe Wyatt, Team Leader	Dr. Thomas W. Cole
Dr. Raymond Bye, Jr., Coordinator	Dr. Alfredo G. de los Santos, Jr.
Dr. Carlos Castillo-Chavez	Dr. Shirley McBay

Visit Overview:

After a review of the relevant materials provided our team, a December 17-19, 2003, The Washington Advisory Group, led by Mr. Joe Wyatt, conducted a site visit to the University of Texas at the Permian Basin. The team included its coordinator, Dr. Raymond Bye, and the four additional consultants listed above. The WAG team met with 15 distinct groups. We conducted the meetings and discussions either as an entire team of six or in one of our two subgroups of three. These UTPB groups consisted primarily of faculty drawn from a broad selection of academic disciplines as well as a group of support staff. In addition, we met with a group of community leaders that included an elected official and leaders of the local Chambers of Commerce in Midland and Odessa, including the Mexican American and Black Chambers. We had working dinner discussions with the deans and another with President David Watts and Vice President for Academic Affairs William Fannin. In addition, we had an opening meeting with the university's leadership, including the president and vice presidents. On the last day of our visit, we held a final debriefing with President Watts, the vice presidents, deans, and assistant vice president for graduate Studies and sponsored research.