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March 30, 2007

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Mr. John O'Brien
Executive Director
Legislative Budget Board
Robert E. Johnson Building, 5th Floor
1501 N. Congress
Austin, Texas 78701

Dear Mr. O'Brien:

On behalf of the Coordinating Board, I am forwarding the following educational impact statement on Senate Bill 1150, which would establish a school of engineering at Texas A&M University-Corpus Christi (TAMU-Corpus Christi) and direct the Coordinating Board (CB) to prepare a feasibility study to determine the actions required to obtain accreditation of the school.

Need for Engineers

At 19 public institutions of higher education in Texas, there are currently 106 baccalaureate programs in engineering, 129 master's programs in engineering, and 73 doctoral programs in engineering with more than 34,000 declared majors in all the programs combined (25,741 at the baccalaureate level; 5,154 at the master's level; and 3,141 at the doctoral level). In FY06, in all disciplines of engineering, 3,822 bachelor's degrees, 2,283 master's degrees, and 500 doctoral degrees were awarded. Also there are seven private institutions that awarded 348 baccalaureate degrees, 256 master's degrees, and 60 doctoral degrees in 2006. Based on the number of graduates in engineering programs and the Texas Workforce Commission's projections for job openings (5,720 per year) between 2002-2012, Texas is meeting or exceeding the need for graduates in most engineering fields including agricultural engineering, chemical engineering, civil engineering, computer hardware engineering, electrical engineering, mechanical engineering, mining/geological engineering, and nuclear engineering.

Although the Texas Workforce Commission's projection suggests that Texas is meeting its need for engineers, industry leaders working through the Texas Engineering and Technology Consortium (TETC) have expressed a desire to increase the number of engineering graduates and are providing matching funds to do so. With the help of TETC, Texas public institutions increased the number of baccalaureate graduates by 26 percent between 2002 and 2006 (from 3034 to 3822).

Need for Engineering Programs

The two largest engineering programs, The University of Texas at Austin and Texas A&M University each graduated approximately 975 engineers in 2006. They are the only public schools that limit the number of students who may enroll in

engineering. The next largest public engineering program at Texas Tech University graduated only 329 undergraduates. With additional resources, Texas has sufficient schools and programs to increase the number of engineering graduates as qualified students become available. What Texas lacks at this point is adequate numbers of high school graduates sufficiently well-prepared in mathematics and science to increase significantly the enrollments in existing engineering programs. Adding another engineering school in Texas would likely redistribute engineering students rather than increase substantially total enrollment in engineering programs.

Cost

The cost of starting a new engineering school at the University of North Texas (the most recent school) was \$30 million for the building and \$10 million for equipment. Annual operating cost for a small rather new program at The University of Texas at Tyler falls between \$2.5 and \$3 million in salary, maintenance, and equipment renewal. (TAMU-Kingsville's 2006 total operating budget was \$8.5 million, but this larger budget supported six undergraduate programs including computer science, seven master's, and one PhD degree program with a total of 1,153 students, 51 faculty, and 30 staff.) The operating cost for a new school in Corpus Christi would be at least as much as for the programs in Tyler and might be as much as for the School in Kingsville.

TAMU-Corpus Christi should ensure that enrollment-driven formula funding will cover operating costs and adequate staffing for accreditation needs. There is a substantial risk that TAMU-Corpus Christi cannot sustain a high-quality program with enrollment-driven formula funding and the low enrollments that are likely. Furthermore, by shifting some enrollment from Kingsville and other nearby programs, the revenue for those programs will be reduced and their quality placed at risk.

If non-formula special item funding is necessary to subsidize the operation of the proposed school, consideration should be given to the idea that such funding might be used more effectively to improve graduation rates in existing programs. Most engineering programs at less selective institutions in the U.S. lose nearly half of the freshmen who initially expect to become engineers. Many students find that they are not prepared to do the hard mathematics and mathematical analysis required to complete an engineering program. Tutoring, mentoring and on campus employment have been shown to reduce the number of students who give up on an engineering career and transfer to other majors. Such special services can not be supported with current formula funding but have been supported by the TETC and the appropriated Technology Workforce Development (TWD) Grant which TETC industry partners matched. The TWD (\$2 million per year average) grant was not appropriated for the current biennium but it is under consideration for the 2008-2009 biennium at \$6.9 million and \$7.9 million respectively.

Regional Impact

TAMU-Corpus Christi draws most of its students from counties located within 171 miles of the campus. Within that area there are three engineering schools and four institutions (including TAMU-Corpus Christi) with engineering technology programs. Nearly every person in the region lives within commuting distance of an engineering or engineering technology program.

- *Texas A&M University-Kingsville* is 49 miles away from TAMU-Corpus Christi and 30 miles from the edge of the city. It now has five engineering programs with 631 students and 108 graduates per year. Its enrollment grew from 569 students in 2002 (11 percent) and its graduation number grew from 90 in 2002 (20 percent). It also has engineering technology programs.
- *The University of Texas at San Antonio* is 171 miles away. It now has three engineering programs with 1464 students and 182 graduates per year. Its enrollment grew from 1096 students in 2002 (34 percent) and its graduation number grew from 123 in 2002 (48 percent).
- *The University of Texas-Pan American* is 152 miles away. It now has five engineering programs with 862 students and 104 graduates per year. Its enrollment grew from 711 students in 2002 (21 percent) and its graduation number grew from 60 in 2002 (73 percent).
- *The University of Texas at Brownsville* is 167 miles away. It has programs in engineering technology (11 graduates in 2002, 10 graduates in 2006) and engineering physics (no graduates in 2002, 1 graduate in 2006).
- *TAMU-Corpus Christi* currently has programs in engineering technology (121 students compared to 92 at Texas A&M University-Kingsville).

Until regional high schools increase the pool of well-prepared graduates interested in engineering careers, it is likely that the proposed school of engineering at TAMU-Corpus Christi would draw students away from TAMU-Kingsville and possibly from UT-Pan American.

There may be highly specialized local engineering program needs associated with the petrochemical industry, marine industries or other local industries. If such unmet needs exist, these might be addressed through cooperative programs between the Kingsville and Corpus Christi campuses without incurring the cost of a new school.

Accreditation

Accreditation of specialized programs such as engineering is an institutional responsibility. Neither the CB nor the system governing board is normally involved in any part of that accreditation process and neither has staff expertise that would be helpful to the institution in that process. The CB would expect any new program to

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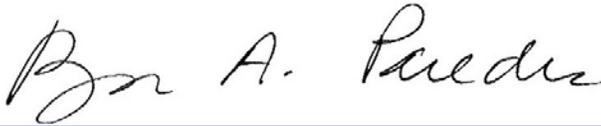
pursue accreditation from the Accreditation Board for Engineering and Technology (ABET).

Conclusion

Without a significant increase in the number of high school graduates in the Corpus Christi region and adjacent parts of south Texas well-prepared to undertake engineering studies, the proposed engineering school is unlikely to thrive and would likely draw students away from existing programs in the region. Furthermore, if at some future time the prospects for a cost-effective and vibrant engineering program in Corpus Christi should emerge, TAMU-Corpus Christi should follow established procedures for requesting CB approval of new engineering degree programs and an engineering school or college. The university should address need, demand, cost and quality in the standard format for proposing new programs and academic units. The CB would then carefully review such a proposal and take action based on that review. The university should also develop a plan to meet the standards of the Accreditation Board for Engineering and Technology.

The Coordinating Board welcomes the opportunity to comment upon proposed legislation affecting higher education. Please let me know if the Board or I can provide additional assistance regarding SB 1150 or other proposed legislation.

Sincerely,



Raymund A. Paredes

c: Coordinating Board Members
David Gardner

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