

RELLIS: A Transformational Initiative for Collaborative Education and Research

Dr. James K. Nelson Jr. P.E., Texas A&M University

Dr. James K. Nelson received a Bachelor of Civil Engineering degree from the University of Dayton in 1974. He received the Master of Science and Doctor of Philosophy degrees in civil engineering from the University of Houston. During his graduate study, Dr. Nelson specialized in structural engineering. He is a registered professional engineer in three states, a Chartered Engineer in the United Kingdom, and a fellow of the American Society of Civil Engineers. He is also a member of the American Society for Engineering Education and the SAFE Association. Prior to receiving his Ph.D. in 1983, Dr. Nelson worked as a design engineer in industry and taught as an adjunct professor at the University of Houston and Texas A&M University at Galveston. In industry he was primarily involved in design of floating and fixed structures for the offshore petroleum industry. After receiving his Ph.D., Dr. Nelson joined the civil engineering faculty at Texas A&M University. He joined the civil engineering faculty at Clemson University in 1989 as Program Director and founder of the Clemson University Graduate Engineering Programs at The Citadel and became Chair of Civil Engineering in 1998. In July 2002, Dr. Nelson joined the faculty at Western Michigan University as Chair of Civil and Construction Engineering. At Western Michigan he started the civil engineering undergraduate and graduate degree programs and also chaired the Departments of Materials Science and Engineering and Industrial Design. In summer 2005 he joined the faculty at The University of Texas at Tyler. At UT Tyler he was the founding chair of the Department of Civil Engineering and instituted the bachelor's and master's degree programs. In 2006 he became the Dean of Engineering and Computer Science. Dr. Nelson returned to Texas A&M University in 2016 as Assistant Vice Chancellor and Director of Special Academic Initiatives for the Texas A&M University System. Dr. Nelson's primary technical research interest is the behavior of structural systems. For almost 25 years he has been actively involved in evaluating the behavior of free-fall lifeboats and the development of analytical tools to predict that behavior. His research has formed the basis for many of the regulations of the International Maritime Organization for free-fall lifeboat performance. Since 1988, Dr. Nelson has served as a technical advisor to the United States Delegation to the International Maritime Organization, which is a United Nations Treaty Organization. In that capacity, he is a primary author of the international recommendation for testing free-fall lifeboats and many of the international regulations regarding the launch of free-fall lifeboats. He has authored many technical papers that have been presented in national and international forums and co-authored three textbooks. Dr. Nelson chaired a national committee of the American Society of Civil Engineers for curriculum redesign supporting the civil engineering body of knowledge. He is actively engaged in developing strategies for enhancing the STEM education pipeline in Texas and nationally, and has testified before the Texas Senate and House Higher Education Committees in that regard. He served on a committee of the Texas Higher Education Coordinating Board to develop a statewide articulation compact for mechanical engineering and chaired the councils for developing articulation compacts in other engineering and science disciplines. He also served on the Texas State Board of Education committee preparing the standards for career and technical education.

Prof. John A. Barton PE, Texas A&M University System

John A. Barton, P.E. is a Professor of Practice for the Zachry Department of Civil Engineering at Texas A&M University, an Associate Vice Chancellor for the Texas A&M University System, and the Executive Director of the TAMUS RELLIS Campus. In these roles John directs all activities related to the development of the new TAMUS RELLIS Campus and provides direction, guidance and advice for the College of Engineering departments and their faculty to integrate the collective assets of the Texas A&M University System to generate ideas that address critical challenges to the state and nation. He also provides classroom instruction to educate students through lectures and seminars focused on leadership, public administration and emerging transportation technologies. Mr. Barton recently retired as the Deputy Executive Director of the Texas Department of Transportation (TxDOT) where he provided executive control

and oversight of all TxDOT operations and the management and operation of the state's transportation system. Mr. Barton held a variety of positions with TxDOT in two TxDOT districts as well as the agency's central administration during his 30 years of state service including Area Engineer, Director of Transportation Planning and Development, District Engineer and Assistant Executive Director for Engineering Operations. Mr. Barton graduated with honors with a Bachelor of Science Degree in Civil Engineering from Texas A&M University in 1986. To mention a few of his most recent accomplishments, in October 2014 he received the Distinguished Graduate Award of the Zachry Department of Civil Engineering from his alma mater, in February 2015 he was honored as the inaugural recipient of the Governor Rick Perry Leadership in Transportation Award, in July 2015 he was presented with the AASHTO President's Special Award of Merit and in August 2015 he received the FHWA Administrator's Public Service Award. Mr. Barton is a member of the American Society of Civil Engineers and served in a variety of leadership positions on national associations including the Board of Directors of the Intelligent Transportation Society of America, Chairman of AASHTO's Subcommittee of Traffic Engineering, and Board of Directors of the National Operations Center of Excellence. Mr. Barton was most recently named to the Safety Advisory Board for Uber Technologies, Inc. and the Advisory Board for the Southwest Research Institute.

Dr. James R. Hallmark, Texas A&M University System

James Hallmark currently serves as Vice Chancellor for Academic Affairs for the Texas A&M University System. In this position, Hallmark oversees all matters involving faculty, curriculum, student affairs, student success, enrollment management/admissions, and special projects for the 11 universities and 140,000 students in the A&M System. Prior to this appointment, Hallmark served as Provost/Vice President for Academic Affairs at West Texas A&M University (WTAMU) as well as a lengthy term as Dean of the Graduate School and Research at that institution. In 2016 Hallmark briefly returned to West Texas A&M as interim President while conducting the search for the permanent leader. Hallmark is the founding director of the William H. and Joyce Attebury Honors Program at WTAMU and served two terms as President of the Faculty Senate. Hallmark received his Ph.D. and M.A. from the University of Oklahoma in Communication with a focus on organizational socialization, and his Bachelor of Arts from Oklahoma Christian College with a double major in American Studies and Communication.

Mr. Billy C. Hamilton, The Texas A&M University System

Billy Hamilton is Executive Vice Chancellor and Chief Financial Officer of the Texas A&M University System. TAMUS is one of the largest systems of higher education in the nation, with a statewide network of 11 universities, seven state agencies, two service units and a comprehensive health science center.

Prior to his current position, Hamilton was a consultant in tax, fiscal policy and related issues. In this capacity, he works with a wide range of public and private clients. He continues to write a regular column on state tax issues for the national publication *State Tax Notes*.

Prior to January 2007, Hamilton was Chief Deputy Comptroller of Public Accounts of Texas. He was appointed to that position in January 1999 by Comptroller Carole Keeton Strayhorn. Hamilton previously served as Deputy Comptroller for seven years from 1991 to February 1998. In the interim, he was in private practice. As Deputy Comptroller, Hamilton was responsible for the day-to-day management of the Comptroller's office. The Comptroller is the state's chief fiscal officer and is responsible for state tax administration, statewide financial management, and state treasury operations. The Comptroller employs a staff of 2,800 in Austin and more than 40 field offices around the state and in three other states. Hamilton retired from state service in late 2006.

Hamilton has also served on special assignment as Co-Executive Director of the California Performance Review for Governor Arnold Schwarzenegger. The CPR's 2,500 page assessment of California government, *A Government for the People for a Change*, was released in July 2004.

Prior to joining the Comptroller in 1991, Hamilton was director of state and local services for the Policy Economics Group of KPMG Peat Marwick in Washington, D.C. He served in that position from 1987 through 1990. In 1986-87 Hamilton was executive director of the Select Committee on Tax Equity, a panel created by the Texas Legislature to study the state's tax structure. Prior to his work with the Select

Committee, Hamilton worked for the Texas Association of Taxpayers, a business group interested in tax policy and fiscal responsibility in Texas government. From 1982-86, Hamilton was Associate Deputy Comptroller for Fiscal Management and Chief Revenue Estimator with the Comptroller of Public Accounts. He was also research director for the Comptroller.

Hamilton is past president of the national Federation of Tax Administrators and the National Tax Association. He has served on the board of directors of the Federation of Tax Administrators, the Multistate Tax Commission, and the National Tax Association. He has served as a member of the board of directors of Quality Texas and also served as a board member of the national Electronic Benefits Council. He was the first recipient (1998) of the Bob Bullock Award for Public Stewardship. He is a fellow of the National Academy of Public Administration.

Hamilton is a graduate of the University of Texas at Austin and the Lyndon B. Johnson School of Public Affairs. He was recognized as the first recipient of the LBJ School's Distinguished Alumni Award in 1987. Hamilton is married and has three children.

RELLIS: A Transformational Initiative for Collaborative Education and Research

Abstract

The Texas A&M University System is transforming a 2,000-acre tract into a premier research, technology development, and education center. When completed, the campus will have five focal areas: an academic campus, a historic campus, a full-scale testing site, secure industry laboratories, and joint research facilities. The goal is to provide multiple pathways to education and training credentials and degrees for students, and to enable new technologies to be developed and progress to the marketplace through collaborative research. Presented in this paper is the roadmap from planning to implementation necessary for the academic activities to achieve the envisioned capability.

Introduction to RELLIS

In September 2015, the 2,000-acre tract known as the Texas A&M University Riverside Campus was transferred to The Texas A&M System. In May 2016, The System announced an initiative to transform the campus into a premier, high-tech research, technology development, and education center, and to rename it the RELLIS Campus. RELLIS is an acronym of the Texas Aggies' core values of respect, excellence, leadership, loyalty, integrity and selfless service.

When completed, RELLIS will have five focal areas: an academic campus, a historic campus, a full-scale testing site, secure industry laboratories, and joint research facilities. The overarching concept is for one campus to provide new and multiple pathways to an academic degree for students with the opportunity to obtain multiple credentials, and to enable new technologies to be developed and progress from the laboratory to the marketplace through collaborative education and research.

Chancellor Sharp estimated that when fully developed, as many as 10,000 students eventually could be studying at the RELLIS Gateway Education Center, the focal point of the educational and training activities at RELLIS. The System's 11 universities, its agencies, and a community college are collaborating on the campus to provide relevant academic and workforce development programs and to contain the cost of education.

The collaborative nature of the RELLIS Campus, offering unique opportunities for students and faculty, is shown in Figure 1. Students will be able to obtain academic credentials from multiple institutions in a manner that is seamless and transparent for the student. For example, students will be able to pursue a major from one institution within the System, a minor from another, a certificate from one of the agencies, and participate in applied research with industry, all at the same location. In the context of the offerings that are available to students, RELLIS is a 21st century polytechnic campus. Polytechnic campuses provide career-focused education in the arts,

social and behavioral sciences, engineering, education, and the sciences. On a polytechnic campus students engage in active applied learning and research necessary to advance society and industry. (Sorensen, Dec 2006)

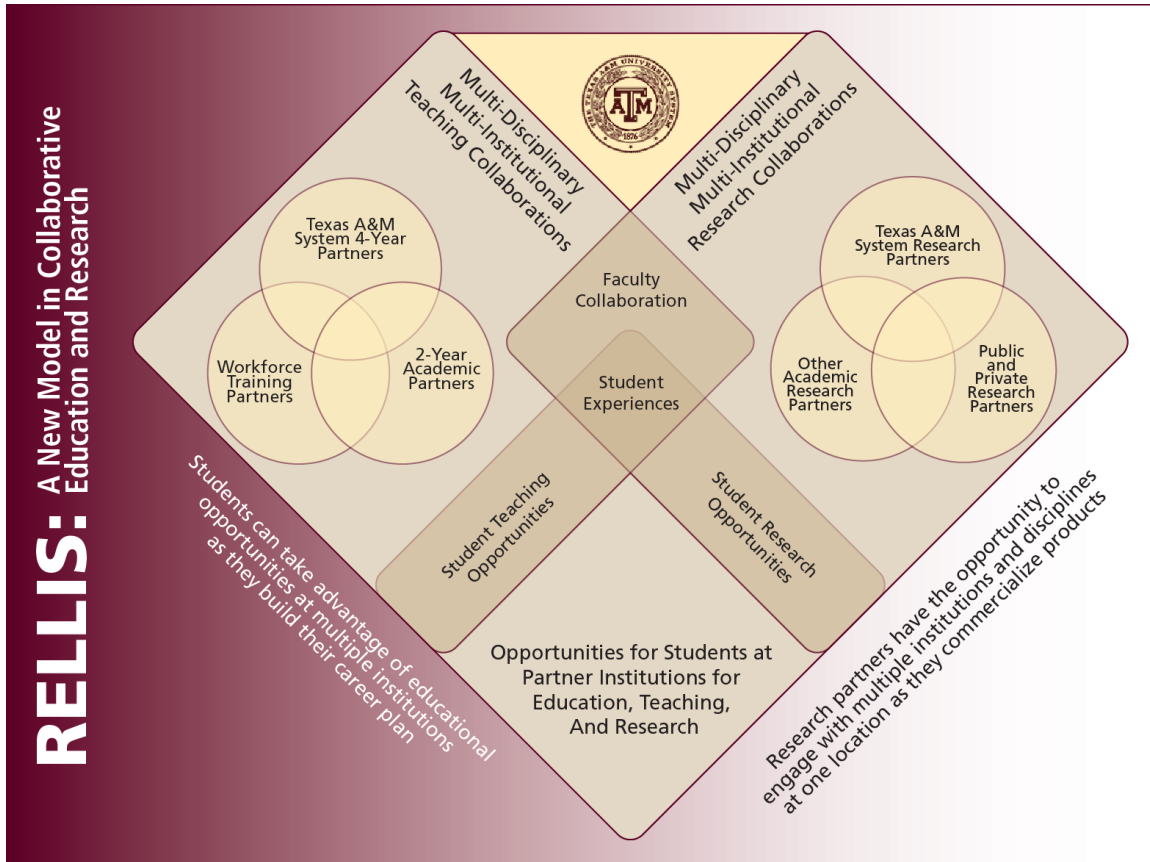


Figure 1: The RELIS Collaboration Model

Working to implement the academic offerings at RELIS has presented some wonderful opportunities, a few hurdles that had to be overcome, and some issues yet to be resolved. Presented in this paper is the roadmap from planning to implementation necessary for RELIS to achieve its full envisioned capability. Included are the criteria for selecting the degree programs that are to be offered, seamless academic advising across multiple institutions with each student retaining the same advisor for the entire degree program, providing all student services necessary for academic study, developing a consistent tuition and fee model across institutions that have varying tuition and fee structures, and recouping the revenue necessary to support the campus infrastructure. Hopefully, this paper can serve as a model for other institutions that are pursuing a similar endeavor.

A Brief History

What is today the RELIS Campus of The Texas A&M University System was commissioned in 1942 as the Bryan Army Airfield, a part of the expansion of the Army Air Forces Training Command. Bryan Army Airfield was constructed with three concrete runways. A large parking

apron was built with additional taxiways, landing aids and several hangars. The buildings were utilitarian and quickly assembled. Most base buildings, not meant for long-term use, were constructed of temporary or semi-permanent materials. Most support buildings sat on concrete foundations but were wood-frame construction clad in little more than plywood and tarpaper. The base had its own hospital, a 40-acre sewage plant, 9 administration buildings, 4 mess halls, supply rooms, officers' quarters, a guardhouse, a chapel, and 37 barracks. (Freeman) An aerial view circa 1943 is shown in Figure 2.

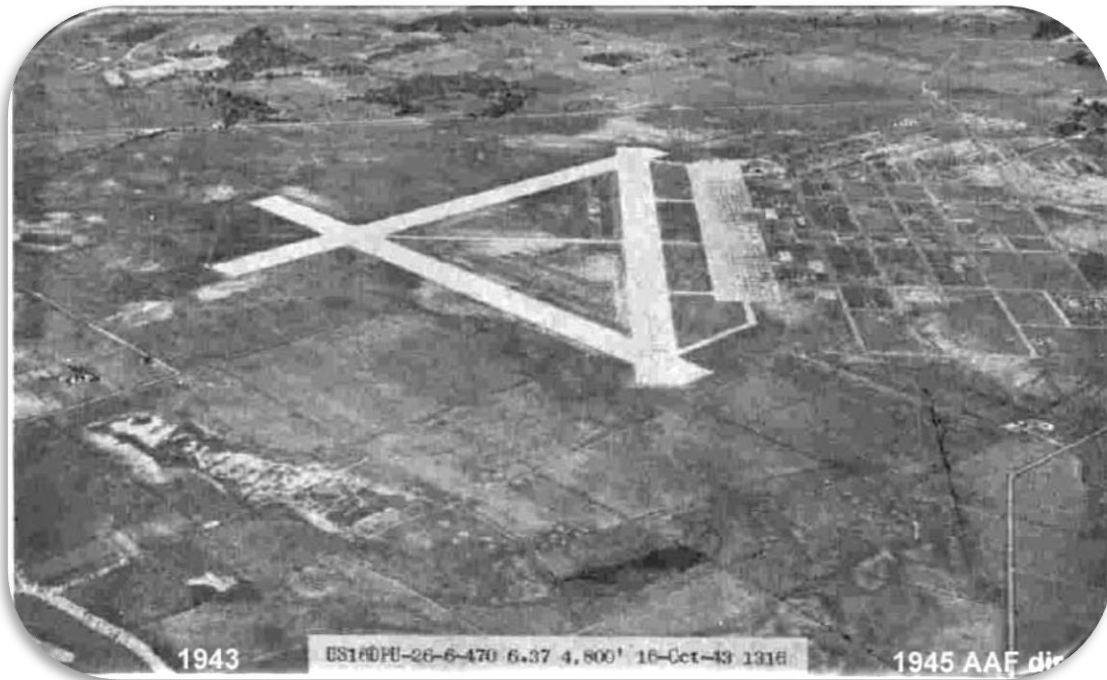


Figure 2: Bryan Army Airfield circa 1943

In 1943 the base was activated as an instructors' school assigned the task of developing a standardized system of instrument flying. The Full Panel Attitude System developed at the base was one of the most significant contributions the base made to pilot training. The instrument-training school was the only one of its kind in the United States Army Air Forces. The base became Bryan Air Force Base upon separation of the air force from the army in 1947 when the Air Force became a separate branch of the military service. (Leatherwood, n.d.)

Following World War II, enrollment at nearby Texas A&M University soared. Housing was in short supply, so between September 1946 and May 1950 an estimated 5,500 men were housed and attended classes at an annex on the former Bryan Army Airfield. (Freeman).

In the spring of 1951 Bryan Field was reactivated as Bryan Air Force Base under the Air Training Command during the Korean Conflict. (Freeman). The Bryan Air Force Base was deactivated in May 1961. The land and buildings were deeded to the Agricultural and Mechanical College of Texas, which later became Texas A&M University, in 1962.

(Leatherwood, n.d.) It has been operated by the University as a research and test center for many years.

The RELIS Transformation

To achieve its full potential, the RELIS Campus will undergo a significant transformation. Building upon the rich history of the Bryan Army Airfield and its use over the past six decades by Texas A&M University and the Texas A&M University System agencies, the facilities and activities at the RELIS Campus will be modernized and expanded to provide collaborative opportunities in state-of-the-art research, education, workforce development and innovation. The transformation will focus on eight functional elements or uses as shown in Figure 3, namely Research Centers, the Historic Campus, the Training Campus, the Education Campus, Secure Industry Laboratories, Joint Research Facilities, the Testing Area, and Storage Activities.

This transformation will include the development of world-class research centers focused on areas of exploration such as cyber-physical systems and robotics, advanced material sciences, autonomous transportation systems and vehicles, chemical process safety and industrial distribution innovations to name only a few. The research centers will allow faculty, students and private-sector partners to collaborate on cutting edge research and technology development activities while benefiting from the use of the proving grounds and testbeds that will be available at the RELIS Campus.

The testbeds and proving grounds will afford large-scale testing of the technologies developed through collaborations in a safe and controlled environment. The testing facilities will enable technologies to move from the laboratory bench environment to a product-readiness level suitable for real world piloting, thereby bridging the “valley of death” that so many technologies and innovations often succumb to in the research and development cycle.

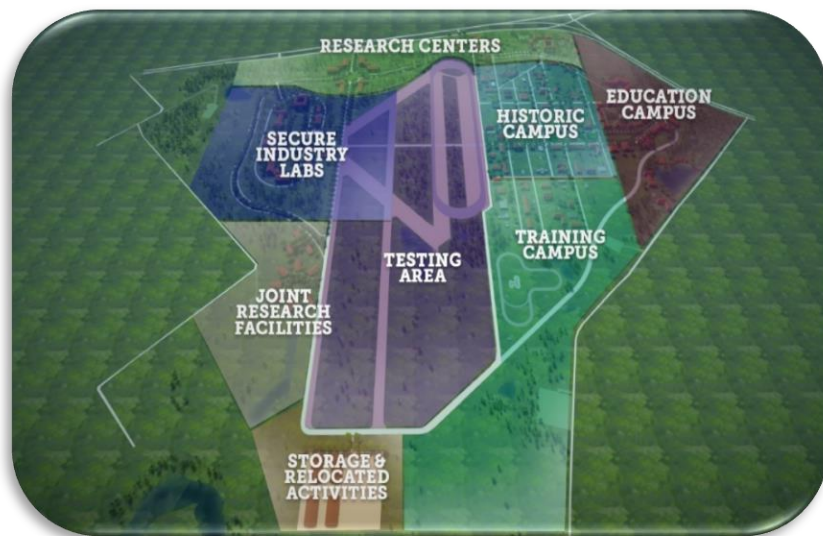


Figure 3: The RELIS Campus


Another foundational element of the RELLIS transformation will be the new education campus that will be provided by Blinn College and The Texas A&M University System institutions. The education campus facilities will provide the state-of-the-art resources needed to support the higher education four-year degree programs that will be offered by the education partners at the RELLIS Campus.


Complementing the research and education related facilities, the RELLIS Campus will also provide opportunities for workforce development and training in a variety of key areas. Building upon the programs already underway at RELLIS related to law enforcement, municipal services and utility training and certification, expanded programs related to new and emerging technologies and fields of interest will provide students and employees with meaningful skills training and professional certifications.

Underpinning all the improvements that will be made to the RELLIS Campus is the intent to develop and provide a “living laboratory” environment throughout the campus for the development and refinement of new and emerging technologies. To this end, as each of the elements of the RELLIS Campus transformation are constructed they will be designed to include the necessary features and flexibilities to support the insertion and testing of new technologies as part of the education and research collaboration that forms the foundation of the RELLIS Campus experience.

RELLIS Mission and Vision

In the context of the dream for the RELLIS Campus vocalized by Chancellor Sharp, the mission and vision statements for RELLIS were formalized. These statements became the guiding principles for the RELLIS Campus and are embodied in the development of the academic and workforce offerings. They are the core of the RELLIS academic programs and educational collaboration.

 **RELLIS Mission:** The mission of RELLIS is to provide multi-disciplinary and multi-institutional teaching, research, and service collaboration committed to blending industry expertise and innovative research on a premier state-of-the-art campus supporting the needs of Texas and the global community.

 **RELLIS Vision:** By focusing on collaboration beyond institutional affiliation, RELLIS will serve as the model for the future of higher education by redefining relationships between higher education institutions and that of business and industry to cultivate unique opportunities for education and research.

RELLIS Academics and 60x30TX

60x30TX is a statewide plan developed by the Texas Higher Education Coordinating Board (THECB) to enhance the workforce of the state through higher education. As stated in the introduction to the plan:

“Texas has become increasingly engaged in a global economy dependent on skilled and knowledgeable workers. Most of those workers come from higher education. Although Texas is improving at increasing college completions for

students from groups that traditionally have not earned certificates or degrees in large numbers, the state has not improved quickly or broadly enough to keep up with the changes in demographics. Completions in Higher education must reflect the population as a whole. (THECB, 2015)

The report continues to state that:

While continuing to pursue increased knowledge and higher standards of excellence in teaching, research and innovation, two- and four-year colleges in Texas will need to consider more explicitly the primary reason most students attend college: to get a better job and achieve a better life. (THECB, 2015)

The four objectives for the 60x30TX initiative as have been formulated by the THECB are (THECB, 2015):

- ✚ **By 2030, at least 60 percent of Texans aged 25-34 have a degree or certificate:** The THECB states that this overarching goal for 60x30TX is essential for the future prosperity of Texas, and that without bold action Texas faces a future of diminished incomes, opportunities, and resources.
- ✚ By 2030, at least 550,000 students in that year will complete a certificate, associate, bachelor's or master's [degree] from an institution of higher education in Texas: The state will need to continue the degree production increases of recent years to reach this goal, with large increases among targeted groups.
- ✚ By 2030, all graduates from Texas public institutions of higher education will have completed programs with identified marketable skills: The marketable skills goal emphasizes the value of higher education in the workforce. Students need to be aware of the marketable skills embedded in their academic programs, and institutions must make certain that students graduate with marketable skills.
- ✚ By 2030, undergraduate student loan debt will not exceed 60 percent of first-year wages for graduates of Texas public institutions: The student debt goal aims to help students who graduate with debt complete their programs with manageable debt. This goal challenges stakeholders to balance levels of student loan debt with a graduate's earning potential the first year after college.

The 60x30TX initiative was a driving influence for the RELLIS academic program offerings. A brief statement of how these objectives influence the academic offerings are as follows:

- ✚ **60 percent of Texans aged 25-34 have a degree or certificate:** Through the programs and measures proposed for RELLIS, the number of students graduating with a marketable degree and certificate will increase especially among under-represented populations. At the core of the academic model is an associate and baccalaureate degree. Supporting the core are the workforce training and certificate programs, all of which will be readily available to students at a single location. Further, RELLIS can serve as a focal point for continuing professional development.

- ✚ **550,000 students will earn a certificate or degree by 2030:** As stated, achievement of this goal will require a significant increase among target populations. An unwritten component of this goal is that the opportunities must be available where the student are able to study. Through RELLIS, degree programs are being made available to a large group of students in a region that is not supporting many other opportunities. Further, workforce and certificate training programs are made available to the same students that would not otherwise be available to same extent, or at all, for students studying at one of the regional campuses in the system.
- ✚ **Marketable Skills:** One of the primary considerations for a program of study to be offered at RELLIS is that is be a high-need high-impact degree program, and academic programs that support high-need areas.
- ✚ **Student Debt:** A significant component of the RELLIS academic initiative is strong synergistic collaboration between two-year and four-year institutions. Such collaboration will result in significantly reduced “wasted credit hours, which will hold down cost.” Further, because the cost of tuition at two-year institutions is lower than that at four-year institutions, student loan debt should be lower. This will only occur, however, if strong linkages exist between the two-year and the four-year components of the degree. (Shapiro, et al., 2016)

Academic Guiding Principles and Strategic Goals

The guiding principles for development of the academic program offerings on the RELLIS Campus are to:

- ✚ Provide students the opportunity to obtain a 21st century polytechnic education through synergies in academic and research opportunities;
- ✚ Avoid duplication of programs and course offerings among the partner institutions;
- ✚ Provide students with academic and workforce offerings in high-need programs that will lead to employment after graduation; and
- ✚ Provide programs that collectively will provide for the economic viability of the RELLIS campus and be of financial benefit to the offering institutions.

In the context of these guiding principles, considerable effort was spent developing the strategic goals and objectives for the academic programs offered at RELLIS. Following is a statement of each of the strategic goals for academics at RELLIS.

- ✚ **Goal 1–State of the Art Campus:** *Develop a state-of-the-art campus supporting the collaborative mission of the RELLIS Initiative.*

The RELLIS Campus is envisaged to be a premier high-tech, high-impact innovative research and education campus integrating smart campus and state-of-the-art technologies, practices, and processes to effectively and efficiently manage shared campus resources and assets, and to enable a collaborative environment for all users. The

RELLIS Campus is further envisaged to be a living laboratory for students, faculty and industry that facilitates discovery and innovation. This state-of-the-art campus will include technologies such as sensors integrated with real-time monitoring systems; an extensive array of fiber, wireless and Bluetooth capabilities so communication with adequate bandwidth is available throughout the campus; and innovative facilities and classrooms that include leading-edge technologies and features to foster and enable evolving pedagogy and 21st-century learning experiences. In the context of this vision for the entire RELLIS Campus, the Gateway Education Center is envisaged to be a facility that promotes relaxed collaborative and engaged learning and research, and that is a living laboratory for evolving Smart Campus and pedagogical technologies.

- ✚ **Goal 2–Provide Framework for Institutional Collaboration:** *Develop the framework and implement the processes for educational collaboration so that students can partake of educational opportunities across institutional boundaries.*

At RELLIS multiple academic degree programs, programs leading to minors, and training and certification programs will be offered by several institutions and agencies. Member institutions participating in program delivery at RELLIS will operate in a collaborative and non-duplicative manner so that students have an educational experience that appears to be delivered by a single institution. Programs will use courses from multiple institutions to fulfill degree requirements and schedules will be built to maximize opportunities for students. Achieving this will involve coordination of and access to existing systems as well as development of new systems for academic and student support services, which include, for example, verification of degree completion and preparing transcripts, minors, and certificates across institutions; coordination of billing and financial aid; testing for academic accommodation, and veteran’s benefits.

- ✚ **Goal 3–Provide Relevant Programs:** *Provide the academic degree programs, and training and certification programs, to benefit students and satisfy industry needs.*

System institutions and academic partners will offer academic degree programs and minors at RELLIS in fields of study that provide for a career after graduation and that are sought after by industry. Further, the system academic institutions, agencies and academic partners will provide short- term training and certification programs at RELLIS. The latter programs enable students to work in industry with their certification/training while continuing to seek a degree. Collectively, these programs also allow those with a degree to obtain necessary industry skills and certifications to advance in their field or to maintain their professional credentials. Students will be able to partake of all opportunities regardless of their “home” institution.

- ✚ **Goal 4–Ensure Economic Viability of RELLIS Academics:** *Implement a financial model for the RELLIS Academic program offerings that will ensure the financial viability of RELLIS and provide incentive for System institutions and agencies to participate.*

For the RELLIS Gateway Education Center to be sustainable, economic viability must be ensured. Economic viability has three components. First, there must be positive financial incentive for System institutions and agencies to participate. If supporting and offering

programs at RELLIS drains resources from existing campus programs, participation will not continue. Second, the cost structure for students pursuing academic and degree programs must be economical and cost-competitive in comparison to other options available to them. Third, continuing funds must be available to support the maintenance, upgrade, and expansion of the Gateway Education Center, including building maintenance, grounds maintenance, and infrastructure improvements. The last component of economic viability is the ability to provide the student services necessary for an academic campus, including financial aid and registration, student counseling and accommodation testing, health services, and campus security.

Academic Model and Governance

The model for RELLIS academic offerings is presented in Figure 4. At the core of the academic model are an associate’s, baccalaureate, and post baccalaureate degree programs. Supporting the core are the workforce skills training and certificate programs. All programs will be readily available to students at a single location. Further, RELLIS can serve as a focal point for continuing professional development.

Important to note is that RELLIS is not an academic campus authorized to offer degrees. It is being approved as a System Higher Education Center at which multiple institutions within the System can offer selective degree programs. The students will be enrolled at the System institution, but the students will study at RELLIS. Accountability for the academic programs offered resides with the department and faculty offering the degree.

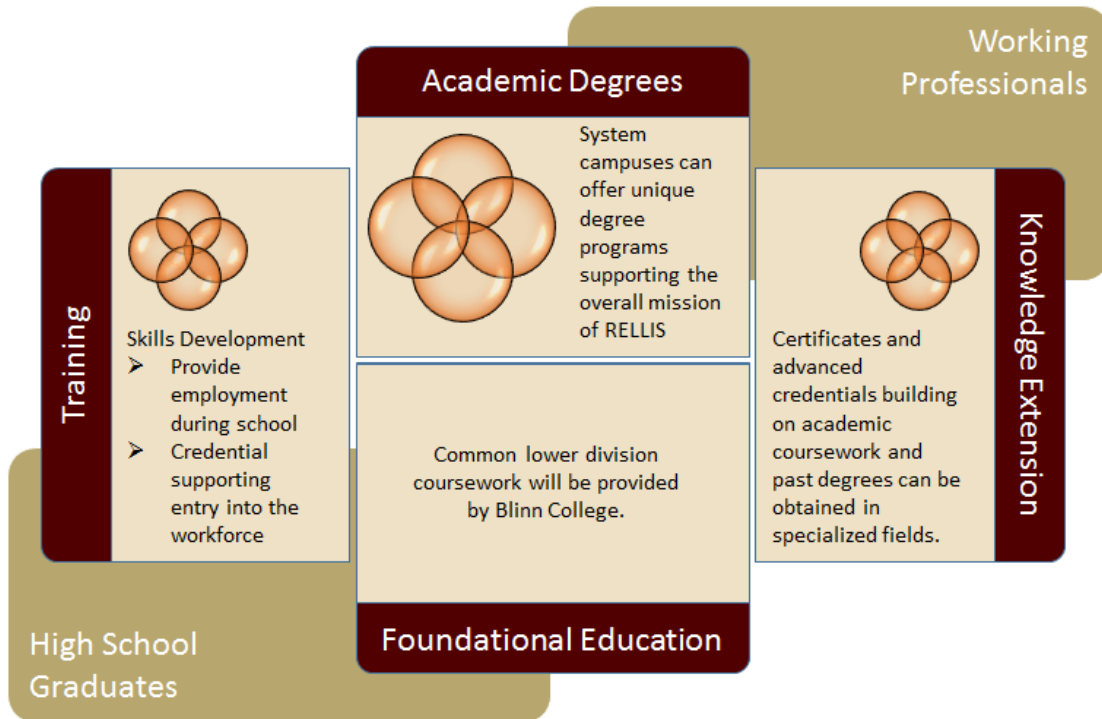


Figure 4: The RELLIS Academic Model

This model is rooted in collaboration among all the partner higher education institutions regarding course offerings and degrees earned, including the potential for minors, and certificate programs. Another significant component of the collaboration is the sharing of courses among degree programs, and the minimization (and hopefully eradication) of duplication among institutions.

Supporting decision-making at the Gateway Education Center are two committees: The Academic Partner Steering Committee and the External Academic Advisory Council. The Academic Partner Steering Committee is composed of a representative from each of the System's academic institutions, the state agencies within the System that have an education mission, and from each of the vice chancellor offices that have an academic mission. The individuals serving on the academic steering committee are appointed to that committee by the respective institution.

In the long-term the Academic Partner Steering Committee has two primary charges. First, it is charged with evaluating training and degree programs that partner institutions and agencies have proposed to be offered at RELLIS and determining whether the program would be offered at RELLIS. Second, it is charged with looking for training and education opportunities that support workforce development in the broadest sense.

In the short-term, in addition to its long-term charge, the academic steering committee is charged with identifying the services that need to be provided at RELLIS and the level of service, with developing criteria for evaluating programs proposed to be offered, and reviewing the financial model for the RELLIS Gateway Education Center.

The second committee supporting the work at the Gateway Education Center is the External Academic Advisory Committee. This committee is composed of external stakeholders of the education and training activities at the education center. It serves and promotes the interests of The Texas A&M University System at RELLIS to offer academic and training programs relevant to the public and private sector needs of the State of Texas and the regions served by the partner institutions and agencies.

Members of the private and public sector in the eight-county region surrounding Brazos County and the state senate district in which the A&M System institutions are located were asked to submit nominations for individuals to serve on the committee. The nominations were reviewed to ensure that there was appropriate regional representation and that the major constituencies were represented.

The RELLIS External Academic Advisory Council is charged to provide advice and recommendations to the Director of Special Academic Initiatives regarding:

- ✚ Programs of study necessary to support the education and training needs of Texas and the eight-county region looking ten years into the future;
- ✚ Opportunities for applied research and development collaboration between the System universities and regional industry; and

- ✚ Sources of philanthropic support for the academic initiatives at RELLIS, and the students studying there.

Selection of Programs Offered

System and partner academic institutions are all eligible to propose degree and certificate programs to be offered at RELLIS. There is no limit in the number of programs, within the constraints of space and cost, that a single institution can offer. The proposed programs, however are evaluated to ensure the objectives of non-duplication and cost-effectiveness are achieved.

When proposing to offer a degree program, the institutions are asked to submit a detailed description of the program including opportunities for a minor, the curriculum (broken out by semester), laboratories and specialized teaching facilities required to offer the degree program, and projected enrollment for the first five year of offering at RELLIS.

The decision tree for evaluating proposed programs of study is presented in Figure 5. Detailed consideration for synergistic opportunities and necessary facilities are presented in Figure 6. When a proposal for offering a degree at RELLIS is received, the Academic Partner Steering Committee evaluates that proposal in the context of this decision tree.

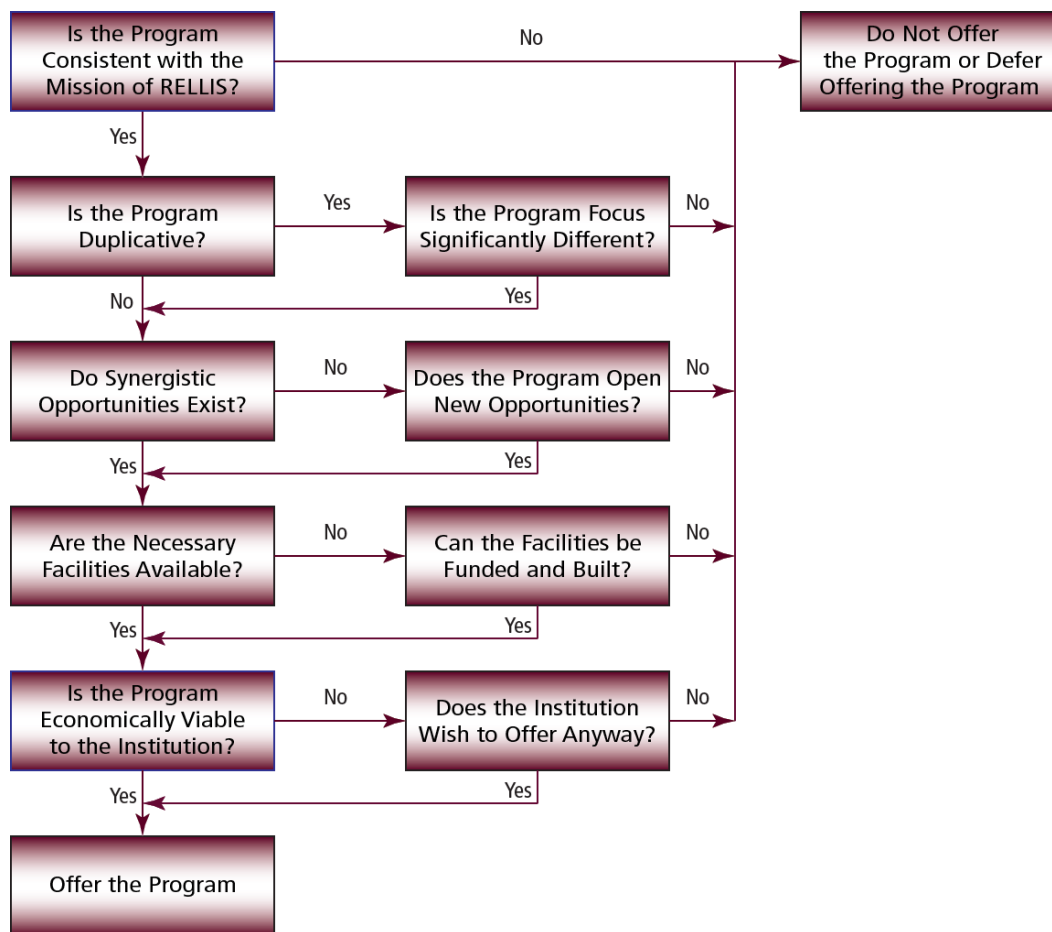


Figure 5: Decision Tree for Evaluating Proposed Program Offering

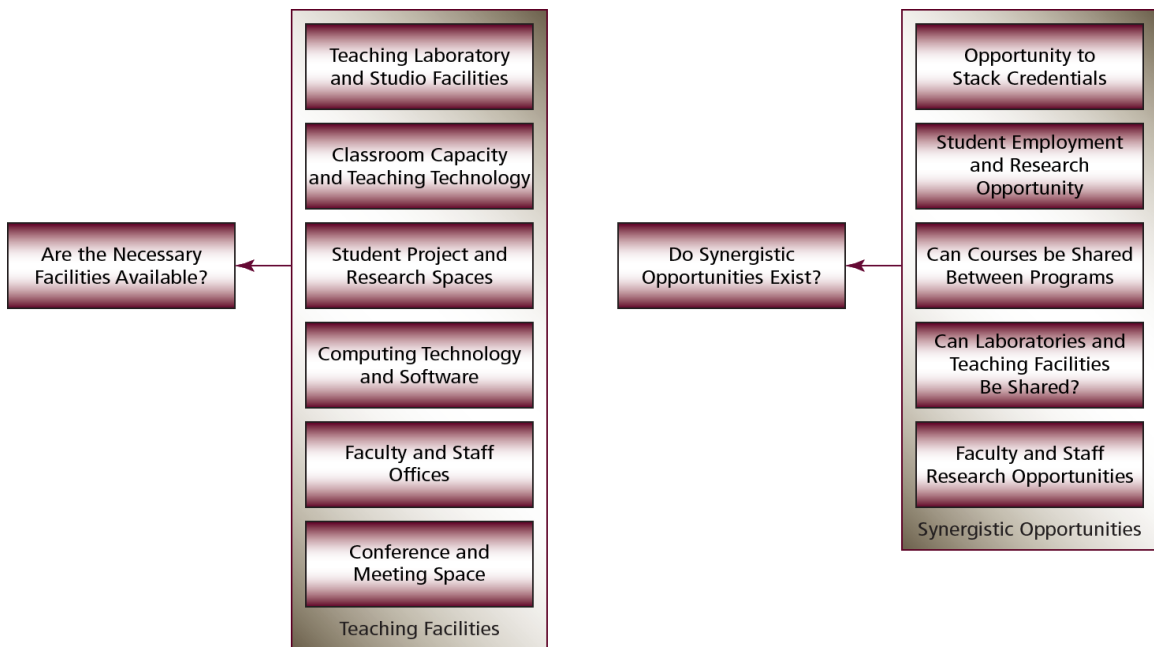


Figure 6: Consideration for Facilities and Synergies

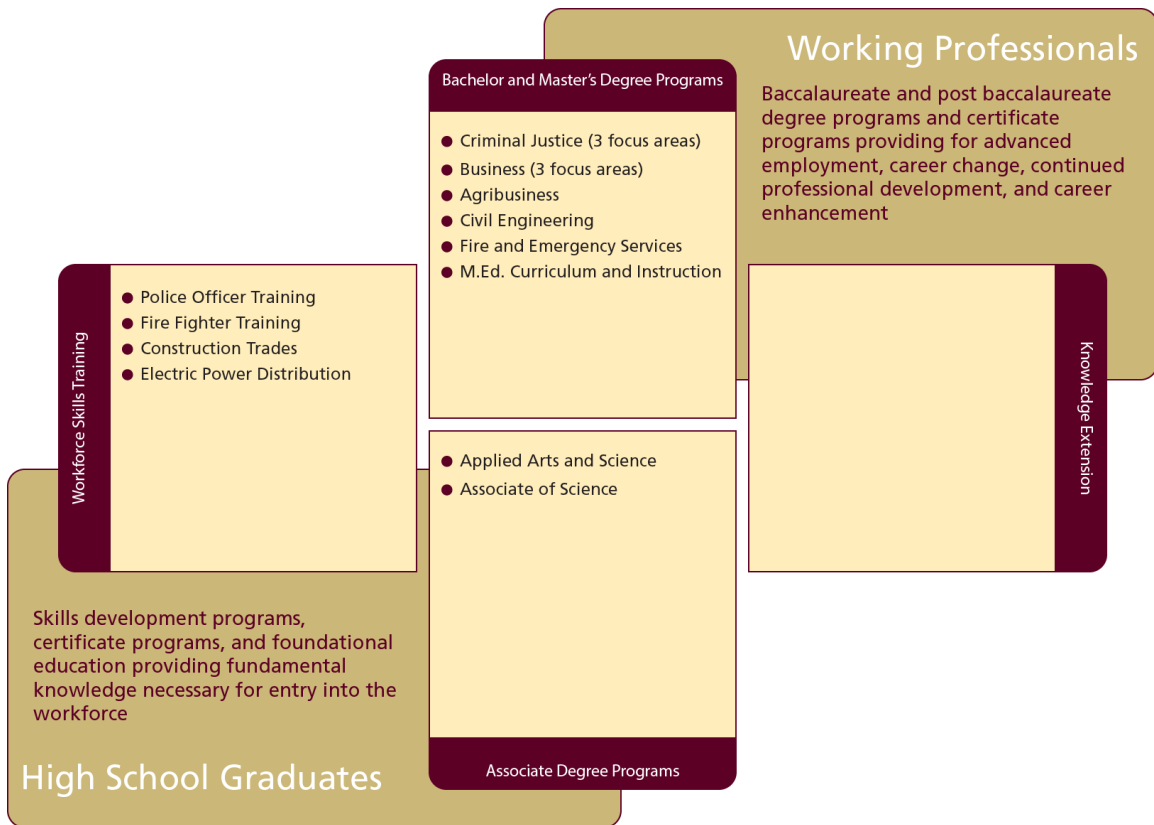


Figure 7: Initial Programs Offerings at RELLIS

The initial programs anticipated to be offered in fall 2017 when the Gateway Education Center opens, as of the time of this writing, are shown in Figure 7. Interesting to note is that there are three different criminal justice programs and three different business programs that are anticipated. On the surface these programs appear to be duplicative, respectively, but after being assessed by the Academic Steering Committee, they were found to be non-duplicative. The focus area, the end skill set, obtained by the students is different, but there is enough synergy among core criminal justice courses that the cost effectiveness is improved for all offerors. Further there is a strong relationship with the police training academy at RELLIS.

One of the considerations for selection of the degree programs was synergies that may exist with existing programs at RELLIS. An example of possible synergies is very evident with the police academy and the criminal justice programs. The synergies are also evident with the fire fighting and emergency management program with the firefighting academy, as well as between civil engineering and the Transportation Institute. Through the synergies, a student can develop a complete program of study that best suits his or her career objectives.



Figure 8: Development of a Student's Degree Plan

When a student pursues one of the degree programs offered at RELLIS, he or she will build their program of study from all the options available at RELLIS as indicated in Figure 8. Inherent in Figure 8 is the ability to combine credentials from multiple sources, and the ability enter and exit the pathway at different points depending upon career objectives.

Of significance to point out is that the coursework satisfying a degree program can be drawn from multiple institutions. This helps contain cost as each institution does not need to offer all the required courses; collectively all institutions need to offer all required courses. Further, a

student can obtain a degree from one institution and a minor from a different institution. This education and training model offers significant benefit to the student and fully supports the objectives of 60x30TX.

Issues that still need to be addressed with the model are automated means through the student information system to track earned credentials and courses from multiple sources without having to resort to manual processing. Some of the challenges involved with this will be discussed in part in the next section.

Student Support and Administrative Services

The administrative structure being implemented for the academic programs at RELLIS is presented in Figure 9. There is a director responsible for the overall operation of the Gateway Education Center. In this capacity, that individual coordinates the offering of education and training programs, but is not responsible for the programs. Program responsibility remains with the faculty and the institution offering the program as was previously discussed.



Figure 9: Academic Administrative and Support Structure

A means to contain cost of operation to the greatest extent possible, which reduces the cost to the student, is to establish “back-office” services that are shared and supported by all academic partners rather than necessitating that each institution establishes its own.

As cost is a significant factor in the success of the academic program offerings, the level of student support and administrative services at RELLIS is important. Sufficient services need to be provided to facilitate student needs and ensure retention, but duplicating support that can be more readily provided by the home campus is unnecessary.

A task committee was formed to identify staffing needs in three key areas: Enrollment Management, Student Success, and Student Affairs. The task committee conducted a survey of regional academic institutions with less than 15,000 students to arrive at benchmark numbers for these services. From this data, the task committee compiled a recommendation for the number of individuals needed based on a range of enrollments looking at the first three years and the next three years. The task committee’s recommendation is presented in Table 1.

Table 1: Benchmark FTE per 100 students for Support Services

Category	Years 1-3				Years 4-6			
	n	Enrollments			n	Enrollments		
		2,500	3,000	3,500		4,000	4,500	5,000
Enrollment Management								
a Admissions	5	0.20	0.17	0.14	9	0.23	0.20	0.18
b Registrar	5	0.20	0.17	0.14	8	0.20	0.18	0.16
c Financial Aid	6	0.24	0.20	0.17	10	0.25	0.22	0.20
d Bursar	4	0.16	0.13	0.11	6	0.15	0.13	0.12
Total	20	0.80	0.67	0.57	33	0.83	0.73	0.66
Student Success								
e Advising	8	0.32	0.27	0.23	13	0.33	0.29	0.26
f Tutoring/Supplemental Instruction	3	0.12	0.10	0.09	3	0.08	0.07	0.06
g Testing	1	0.04	0.03	0.03	1	0.03	0.02	0.02
h Career	2	0.08	0.07	0.06	5	0.13	0.11	0.10
i Disability	1	0.04	0.03	0.03	1	0.03	0.02	0.02
j TRIO	1	0.04	0.03	0.03	2	0.05	0.04	0.04
Total	16	0.64	0.53	0.46	25	0.63	0.56	0.50
Student Affairs								
k Student Affairs (Discipline, . . .)	2	0.08	0.07	0.06	2	0.05	0.04	0.04
l Student Clubs and Organizations	2	0.08	0.07	0.06	2	0.05	0.04	0.04
m Recreation Sports	1	0.04	0.03	0.03	2	0.05	0.04	0.04
n Student Orientation/Transfer	0	0.00	0.00	0.00	2	0.05	0.04	0.04
o International Students	1	0.04	0.03	0.03	2	0.05	0.04	0.04
p Veteran's Services	1	0.04	0.03	0.03	1	0.03	0.02	0.02
q Study Abroad	0	0.00	0.00	0.00	1	0.03	0.02	0.02
Total	7	0.28	0.23	0.20	12	0.30	0.27	0.24
Grand Total	43	1.72	1.43	1.23	70	1.75	1.56	1.40

Table 2: Anticipated Support Personnel at RELIS

		Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
		LF	FTE	LF	FTE	LF	FTE	LF	FTE	LF	FTE	LF	FTE
Projected Enrollments													
Total		2,170		2,714		3,114		3,651		4,150		4,700	
TAMUS		170		314		314		451		550		700	
Blinn		2,000		2,400		2,800		3,200		3,600		4,000	
RELLIS Support Services Global Load Factor		80%		80%		80%		80%		80%		80%	
Category	Inc ID	LF	FTE	LF	FTE	LF	FTE	LF	FTE	LF	FTE	LF	FTE
Student Support Services													
1. Admissions, Tours, Marketing	a	80%	2.89	80%	3.62	80%	4.15	80%	5.84	80%	6.64	80%	7.52
2. Advising, Tutoring, Orientation, Career	e,f,h,n	80%	7.52	80%	9.41	80%	10.80	80%	14.93	80%	16.97	80%	19.22
3. Scholarship, Financial Aid	c	80%	3.47	80%	4.34	80%	4.98	80%	6.49	80%	7.38	80%	8.36
4. Veterans Affairs	p	80%	0.58	80%	0.72	80%	0.83	80%	0.65	80%	0.74	80%	0.84
5. Library, Research Services		80%		80%		80%		80%		80%		80%	
6. Rec Sports, Clubs, Engagement	l,m	80%	1.74	80%	2.17	80%	2.49	80%	2.60	80%	2.95	80%	3.34
7. International Student Services	o	80%	0.58	80%	0.72	80%	0.83	80%	1.30	80%	1.48	80%	1.67
Administration and Operations													
8. Registrar, Bursar, Financial Support	b,d	80%	5.21	80%	6.51	80%	7.47	80%	9.09	80%	10.33	80%	11.70
9. Gateway Center IT Support		80%		80%		80%		80%		80%		80%	
10. Disability Services, Counseling, Disputt	g,i,k	80%	2.31	80%	2.89	80%	3.32	80%	2.60	80%	2.95	80%	3.34
11. Ancillary Services		80%		80%		80%		80%		80%		80%	
12. Human Resources		80%		80%		80%		80%		80%		80%	
Total Support Personnel		24.30		30.40		34.88		43.49		49.43		55.98	

Based on projected enrolments across the two-year and four-year institutions, the number of support personnel were inferred for the academic programs at RELLIS, and are presented in Table 2. Inherent in the personnel projections for RELLIS academic programs is an 80 percent loading factor. The assumption was made that approximately 20 percent of the support and administrative services would still need to be handled by the home campus, which leaves 80 percent of the services being provided by RELLIS.

Providing services in a shared environment presents an opportunity as well as a challenge. The opportunity is that from a student’s perspective the multi-institutional collaboration appears to be single institutional. They have a single point of contact to address most the questions that they may have. Of significant benefit in this regard is that the student will be able to retain the same advisor for the entire academic program.

The challenge is that all the support personnel need to have knowledge of a multitude of institutional policies and access to the necessary databases. Complicating the problem is that each of the institutions likely have different implementations and instantiations of the student information systems (SIS) and the learning management systems (LMS), and issues related to student privacy and who has a right to see the data come into play.

At present, indications are that if the student support personnel at RELLIS are jointly appointed by all the institutions in which students are enrolled for support of the RELLIS students, the issues regarding confidentiality and need to know are addressed.

IT Support Services

An important part of the collaboration envisaged across the RELLIS Campus is the ability to have access to necessary and shared resources. The model envisioned is presented in Figure 10. An important component of this model is that there is a “single-sign-on” for users to obtain access to all the resources for which they are authorized.

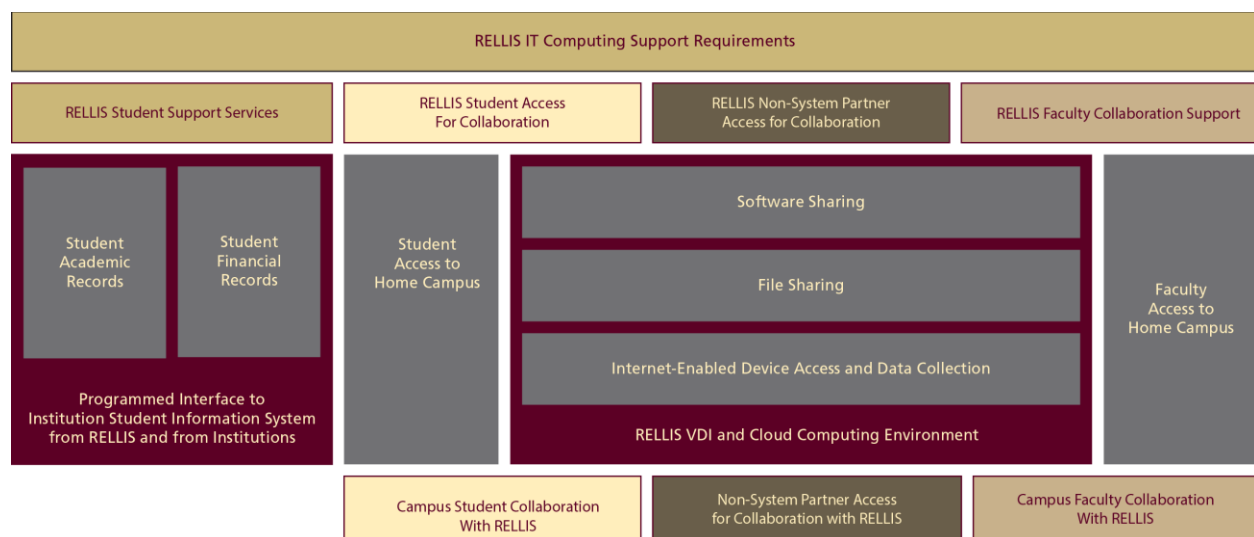


Figure 10: Anticipated IT Support Implementation

A significant component of this IT model is the ability of staff to access student records across the institutional boundaries and systems used. An equally important component is the students' ability to access the LMS as previously stated without having to learn multiple LMS systems.

The IT support is one of the issues that is still being worked through. The constant is that whatever is stood up must support all users of RELLIS: students, faculty, researchers, and industry partners. Numerous options exist, which range from RELLIS standing up its own IT support system to outsourcing through a public-private partnership.

Cost and Financial Considerations

As of this writing, the details of the financial model are still being finalized. The costs that are incurred by the System at RELLIS, as indicated on Figure 11, are the back-offices services that are provided, administration and operation, facility maintenance and upgrade, grounds upkeep, security, and utilities.

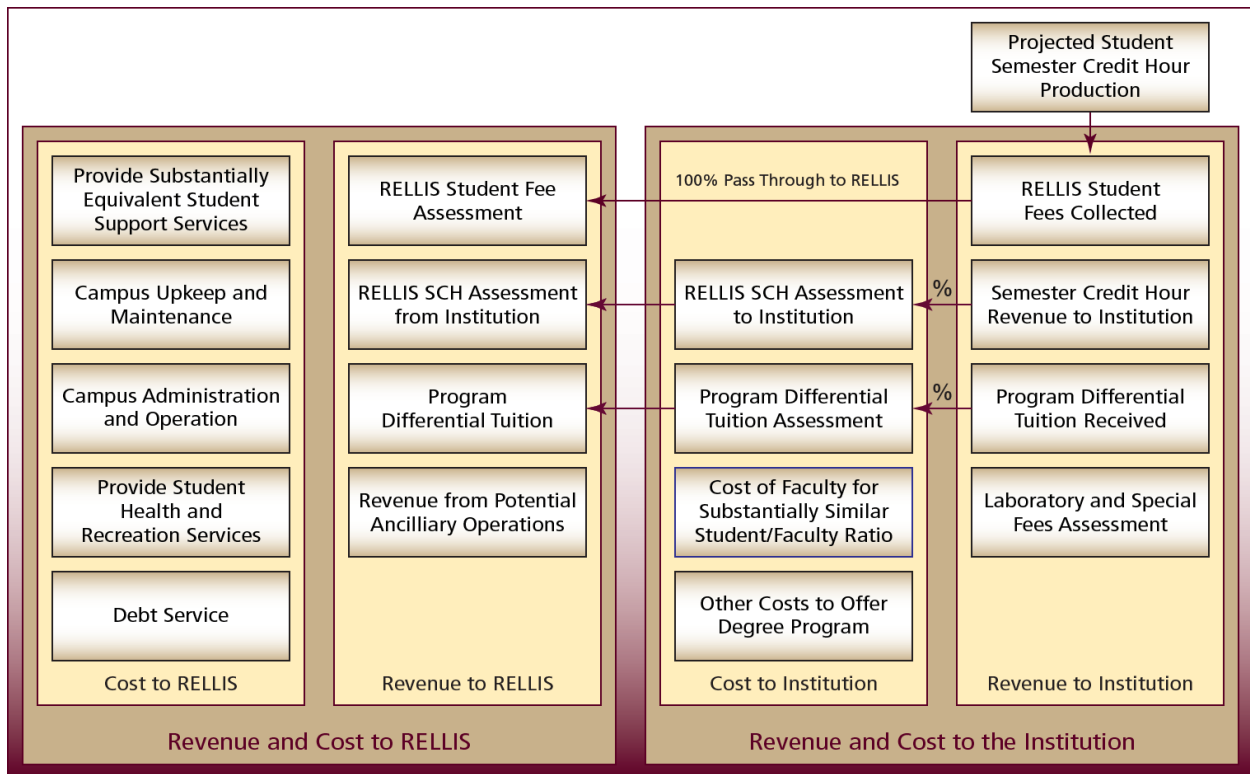


Figure 11: Proposed Revenue Stream for RELLIS Academic Programs

The financial implications of offering a degree program were significant concerns for the system institutions, and was the cause of some reticence. Higher education budgets within Texas are tight right now and all the institutions already have initiatives that they are trying to implement on campus. There was great concern that being required to offer a degree program at RELLIS would be a drain of resources from activities on campus.

These concerns were addressed in two ways. First, no institution was required to offer a degree program at RELLIS, even though it is a System initiative. They were encouraged to offer a program and to remain at the table for discussions, but there was no requirement. Second, significant effort is being invested to contain the cost of operation so that offering a degree program is revenue positive to the institution.

The institutions offering the degree and enrolling students receive all semester credit hour revenue as RELLIS is not authorized to confer degrees or collect tuition and fees, nor is such authority being requested. As with most public institutions, there is a delay from the time costs are incurred until some of the funding is realized, which creates interesting challenges during startup. This issue about start-up costs is one that still must be addressed.

Within Texas, students pay statutory tuition, which is currently \$50.00 per semester credit hour, and designated tuition, which varies from campus to campus. As students enrolled at multiple institutions will be studying at RELLIS, and because students will be taking courses from multiple institutions concurrently, a RELLIS designated tuition rate consistent across all institutions is being considered for students studying at RELLIS. Such a designated tuition rate, when approved by the Board of Regents, is anticipated to place the total cost of tuition and fees paid by a student studying at RELLIS in a 120-hour degree program to be at the median of the of the same degree program wholly completed on the home campus. Because the lower division coursework is being offered by a two-year institution, with a lower tuition rate structure than the four-year institutions, the designated tuition rate can be higher than the home campus and still have the total degree cost not exceed the median of the System institutions.

The other revenue stream is the University Services Fee. This fee is used to provide campus wide services supporting the academic mission, as is a similarly named fee on most campuses. Services provided to students, such as medical clinic access and recreation sports, are paid from this fee. Again, this fee is paid to the institution that offers the course in which the student is enrolled. One hundred percent of the University Services Fees collected will be sent to RELLIS as all those services are provided by RELLIS.

Each institution offering a degree at RELLIS will be assessed a portion of the semester credit hour tuition revenue it receives to pay for the System provided services and cost incurred at RELLIS to enable the academic programs to be offered. At present, the only costs that the institutions are expected to incur are the faculty salary and benefits for offering the degree program. The details of the arrangement and the split of the semester credit hour revenue is still being developed. The end goal is that the System costs are recovered and the program offered is revenue to the home campus.

Authorization and Accreditation Considerations

The Texas A&M University System is seeking approval through the legislature for a System Higher Education Center. Such a center is defined in the THECB rules as a center at which multiple institutions of the same university system offer academic programs. Approval of the center does not create a new university or authorize the System to confer academic degrees. That authority remains with the institution offering the degree.

Each four-year institution offering a degree at RELLIS, except for the flagship university in the System, will be required to notify the THECB that it intends to offer a degree at the off-campus location. The institution is also required to notify each public four-year institution within a 50-mile radius of its intent to offer a degree at the specified off-campus location. As the flagship is the only public institution within 50 miles of RELLIS, the THECB has indicated that resolving objections should be within the System. No other approvals are required from the THECB as only upper division coursework is being offered.

The remaining accreditation concern is the Southern Association of Colleges and Schools Commission on Colleges. At present, with Blinn College offering the lower division course work and the entire State mandated core curriculum, the four-year institutions offering the degree should not be offering more than fifty percent of the entire degree. If that remains the case on a case by case basis, SACS-COC only requires notification. If more than fifty percent of the degree is offered, a prospectus may need to be filed.

The remaining accreditation concern is professional accreditation of those programs that are accredited on the home campus. Continuation of such accreditation, including the off-campus sites, will remain the responsibility of the offering department and institution.

Concluding Remarks

Developing the plan for implementation of the academic programs on the RELLIS Campus has been an exciting, and a challenging, endeavor. In many ways, a new university is being developed, but it is being accomplished through collaboration among multiple institutions and agencies. As discussed, several issues still need to be resolved, but, at present, all is believed to be on track for the arrival of the first students in fall 2018; recruiting for those students will begin in fall 2017. If this schedule holds, only 24 months will have passed from the time the academic campus was announced until students engage in study.

Acknowledgements

The authors wish to thank the RELLIS Academic Steering Committee for their significant efforts and contributions in making the academic opportunities at RELLIS a reality and a success. Without their support and dedicated work, RELLIS would not be where it is today.

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