Collaborating to Make an Impact

San Antonio Region
“The A&M System’s San Antonio regional impact is significant, from education and research to health. This collaboration will bring together our rapidly growing S.A. campus with the System’s agencies to expand on this foundation to positively impact the regional economy and further improve quality of life through education and applied research.”

John Sharp, Chancellor
The Texas A&M University System
Widespread Impact
San Antonio Region

Over $120 million
into the region’s economy

Impacting the lives of over 400,000 residents through education, training and research

The Eagle Ford Shale will create 117,000 jobs by 2021
As reported in San Antonio Express-News
Pooling Resources… Sharing Knowledge

The Texas A&M University System — San Antonio Region

With growth come challenges: This collaboration provides solutions to these challenges.

The San Antonio region is a vibrant area teeming with economic and population growth. This growth presents challenges such as addressing increased demands on the production of energy, water and other material resources in the fertile South Texas land and maintaining the already-strained transportation infrastructure of the region.

The collaborative efforts of The Texas A&M University System partners are leading the way in the San Antonio Region to address these challenges. This offers the potential of new insight for solving critical issues by pooling resources and sharing knowledge.

Our collaboration makes a positive impact on the region by:

- contributing to economic development;
- improving knowledge and applying interdisciplinary research to natural resources;
- improving the overall quality of life;
- educating a professional workforce (degree and vocational);
- safeguarding working conditions for industry employees and advising about production activities related to the Eagle Ford Shale’s development;
- implementing environmentally friendly drilling techniques such as water treatment and reuse, and air emissions measurement and offsets;
- improving energy efficiency of building envelopes, industrial processes and water systems; and
- researching solutions to the region’s critical transportation issues.

The combined effort is lead by Texas A&M University–San Antonio, and includes area partners with expertise in researching issues and training workforce for the region. A strong university commitment to the collaboration exists to provide industry, public utilities, chartered authorities and academia with objective, data-based scientific assessments and projections. Profiles follow of Texas A&M agencies collaborating with the university and the impact they are all making in South Texas.

The prosperity of the region and its people is tied directly to prudent development of natural resources, processes and policies, and to the education of a first-class workforce that will strengthen South Texas’ economy for many decades to come.
Texas A&M University–San Antonio (TAMU-SA) is committed to engaging research scientists from A&M System agencies housed in San Antonio to work with our own science faculty, engage our students in applied research, and become involved as guest speakers, science student mentors and university adjunct faculty.

The university’s goal is to provide an academic home base in South and Central Texas for a wide range of applied research with industry that is related to water quality and conservation, the energy-water nexus, and natural resources studies that both promote economic development and safeguard our environmental commons.

TAMU-SA is committed to excellence in teacher education and advancement of science, technology, engineering and mathematics (STEM) for underserved student populations in South Texas. A partner-institution scholarship, the Toyota Texas Teacher STEM Scholarship, provides generous support for four consecutive years to south-side San Antonio high school students. These scholars will earn an associate’s degree from Palo Alto College and a bachelor’s degree at TAMU-SA in STEM teacher education. Then they will be hired to teach STEM at public schools they once attended, creating a virtuous cycle.

“Over time, connecting our Texas A&M agency STEM colleagues and researchers with the faculty of Texas A&M University–San Antonio in multiple collaborations will accelerate applied research and development in water and energy issues that both safeguard and support economic expansion.”

Brent M. Snow, Ph.D., Provost and Vice President for Academic Affairs  
Texas A&M University–San Antonio

Current students: 4,100  
Operating budget: $34 million  
Degrees awarded in 2011: 832  
Degree plans: 29  
Student/faculty ratio: 22:1  
Enrollment growth: 191 percent from 2008 through fall 2012  
Infrastructure: $40 million was invested from a tuition revenue bond toward construction of the university’s first building during 2010–2012. Permanent university fund dollars projected to be $75 million will be invested in the construction of second and third buildings during 2013–2014. The architectural and contractor-at-risk companies for all three of these buildings are San Antonio–based firms.

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The Texas A&M Institute of Renewable Natural Resources (IRNR) and the Texas Water Resources Institute (TWRI) work collaboratively to conduct interdisciplinary research, education and technology transfer; policy and economic analysis; and stakeholder engagement focused on natural and water resources. This approach fosters the safety, health, security and sustainability of people, land, water and wildlife.

The institutes have numerous projects focused in the San Antonio and South Texas area, including the Edwards Aquifer Recovery Implementation Program (EARIP), rangeland restoration of training lands at Camp Bullis, water quality assessment and restoration in several watersheds, and research on freshwater mussels. A unique online graduate certificate program in military land sustainability that serves to complement three web-based graduate professional degrees is managed by the institutes’ San Antonio office.

IRNR and TWRI operate as units of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, and the College of Agriculture and Life Sciences at Texas A&M University.

“Our collaborative approach promotes the sustainability of land, water and wildlife.”

Roel Lopez, Texas A&M Institute of Renewable Natural Resources and Texas Water Resources Institute

Operating budget: $1.5 million
People trained in 2011: 30

http://irnr.tamu.edu
http://twri.tamu.edu

Texas A&M AgriLife Research and Extension — Texas A&M Institute of Renewable Natural Resources and Texas Water Resources Institute

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For over two decades, the Texas A&M Colonias Program has focused on improving quality of life for residents of impoverished, relatively undeveloped villages, or “colonias,” mostly located on the U.S. side of the 1,434-mile Texas border in 14 counties along the Rio Grande River. Here, half a million people live without running water, sewer systems, paved roads and storm drainage. “There are currently 2,333 colonias in Texas,” says Oscar Munoz, Colonias Program director.

The Texas Legislature established the Colonias Program in 1991 and asked the College of Architecture at Texas A&M to oversee it. “We are working on nine additional centers in three additional cities,” says Munoz.

Aiming to reduce isolation, increase self-sufficiency and enhance the quality of life in these communities, the Colonias Program has partnered with more than 400 agencies to implement sustainable solutions for these communities, such as a water filtration system, educational services to address literacy and job training, as well as other economic and community development assistance.

The program averages 900,000 health-related annual contacts and is projecting 100,000 average contacts for the San Antonio area alone. The Texas A&M Colonias Program’s extensive network at the local, state and national level assists primarily rural communities with partnering opportunities in improving and developing infrastructure projects.

Texas A&M Water Filtration System: An interdisciplinary coalition of scholars work side by side with community members to create low-cost point-of-use ceramic water filters using technologies appropriate to the individuals who use them. The filters fit culturally into the community, are produced from local inexpensive materials, and render contaminated water potable.

**IMPACT**

- **People trained in 2011:** Over 300
- **Certifications offered:** 2
- **40 Community Resource Centers** borderwide, 20 Community Resource Centers under development in Bexar County and surrounding rural communities
- **Texas A&M Community Health Worker/Promotora Outreach Program:** Conducted outreach and training sessions for residents of San Antonio west-side communities relating to health issues
- **Texas A&M Americorp Program:** Assisted an area medical clinic located on the south side of San Antonio with training and delivery of health-related education and preventive measures.
- **Texas A&M Training Academy:** The Colonias Program has 10 certified training instructors available to train workforce groups, community health workers and community residents.

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The Texas A&M Engineering Extension Service (TEEX) plays an integral role in improving the quality of life for Texans, sustaining vital infrastructure, and helping to protect the environment through comprehensive public works programs. Critical, hands-on training and technical assistance have led to cleaner drinking water, safer highways and bridges, more reliable electric power and telecommunications service, and safer bus transportation for our school children.

The Infrastructure Training and Safety Institute provides quality training from professional instructors with real-world experience. The program offers a broad range of public works training to everyone from entry-level employees to executives and trains them across Texas, across America and around the world.

“Our goal is two-fold. First, we help the regional economy by teaching employers better ways of protecting their employees. Second, we teach employees their part in reaching the common goal, which is getting home safely at the end of the day while producing a product and making a little money.”

Jorge R. Peña, Instructor
Infrastructure Training and Safety Institute

**IMPACT**

- Operating budget: **$82.5 million**
- Students trained in 2011: **99,536**

**CONTACT**

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The Texas Center for Applied Technology (TCAT) in the Texas A&M Engineering Experiment Station, a member of The Texas A&M University System, pursues enterprising research projects that fulfill client needs while inserting new technologies into society that promote economic growth and an improved quality of life. TCAT’s world-class scientists and engineers solve real problems for its customers.

TCAT has supported San Antonio for over a decade by working on important economic projects such as the Brooks City-Base during the transition of ownership from the Air Force to the Brooks Development Authority. Another project was supporting the creation of the recent Joint Base San Antonio Sustainability Energy Innovation Center, which works to make the city the hub for Department of Defense energy innovation.

TCAT also studies regional issues, such as the use of brackish water for water shortages. The agency partnered with industry and the City of Laredo to demonstrate a new 50,000-gallon-per-day Texas A&M–licensed advanced vapor compression evaporation desalination technology.

Another regional issue that TCAT tackled was the design and installation of hybrid mobile micro-grids (off-grid power generation) in the underserved colonias to improve the residents’ quality of life and security.

Recognizing the economic importance of the Eagle Ford Shale play, TCAT has been engaged with the oil and gas industry to demonstrate new methods for proper measurement and verification of emissions that support the Alamo Area Council of Governments’ air basin management.

TCAT also partnered with the City of San Antonio to create a multi-purpose sustainability and training center called the Mission Verde Center (MVC) at a former middle school and installed the first net-zero energy demonstration house at MVC.

**IMPACT**

**Brooks City-Base:** Redevelopment and economic viability of a former Department of Defense facility

**Mission Verde Center:** Demonstration and evaluation of sustainable energy and water technologies in San Antonio

**Technology Integration in Eagle Ford:** Air emissions testing for environmentally friendly drilling

**New Desalination Technologies:** Increase in water availability by using brackish water

**Hybrid Micro-grids for Underserved Border Colonias:** Provision of 24/7 electrical power to homes not connected to the electrical grid

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The Texas A&M Transportation Institute (TTI) has had an active presence in San Antonio for almost 20 years. The Institute has strong relationships with local/regional agencies such as the Texas Department of Transportation (TxDOT) San Antonio, Laredo and Pharr Districts; Bexar County Metropolitan Planning Organization; City of San Antonio; Alamo Regional Mobility Authority; and VIA Metropolitan Transit. These relationships are possible due to the unique condition of TTI as the largest university-based transportation research organization in the country. TTI San Antonio Office researchers are frequently asked to provide impartial, authoritative opinions and expertise on transportation matters that affect the San Antonio and South Texas area.

The TTI San Antonio Office developed a state-of-the-art web-based utility-permitting system, which is now in place throughout the state and which automated and streamlined the process to submit, review and approve utility permit applications on state highways. Implementation of the system in San Antonio in 2005 has resulted in considerable savings to public and private utility operators in the region.

The TTI San Antonio Office recently completed a research project that measured the impact of increased levels of energy-related activities on the TxDOT right-of-way and infrastructure, and developed recommendations to reduce and manage TxDOT’s exposure and risk resulting from those activities. The project report addresses a number of topics, including the process to develop a geodatabase of energy developments in the state, field visits, pavement impacts, roadside impacts, operational and safety impacts, and economic impacts.

Also based in the TTI San Antonio Office are two peer-to-peer safe driving programs: Teens in the Driver Seat (TDS) and U in the Driver Seat (UDS). TDS focuses solely on traffic safety and addresses all major risks for the junior high and high school age group, including nighttime driving, speeding and street racing, distractions, low seat-belt use, and alcohol/drug use. Studies indicate the program has played a significant role in helping decrease fatal crashes involving teens by 45 percent since the program began.

UDS is a pilot program for college-aged students. The program is led by leadership teams within four colleges in the San Antonio area — the University of Incarnate Word, The University of Texas at San Antonio, Texas A&M University–San Antonio and Southwest Texas Junior College in Uvalde. The program focuses solely on traffic safety within the college age group.

**IMPACT**

- TTI contract expenditures since 2000: $470 million
- FY11 contract expenditures: $50 million
- FY11 sponsors: 245
- FY11 projects: 713

At any given time, research staff at the TTI San Antonio Office participate (either in a lead or support role) in some 45 projects.

The benefit-cost ratio of transportation research conducted in Texas is in excess of 5:1.

TTI has strong relationships with transportation agencies in San Antonio and South Texas.

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http://t-driver.com
Teens in the Driver Seat
The newly established Water Conservation and Technology Center (WCTC) will accelerate development, testing and adoption of new and innovative technologies to solve emerging water problems and meet future water supply needs for Texas. Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, the Texas A&M Engineering Experiment Station (TEES) and Texas A&M University–San Antonio are collaborating on developing the center. Administered by the Texas Water Resources Institute, in partnership with the Texas Center for Applied Technology, the center is initially located at TEES’s South Presa Campus with plans to move to the new Texas A&M University–San Antonio campus.

The research developed and technology created through WCTC will be regionally focused to support the state’s critical water requirements and integrate strong public–private partnerships. The center will focus on water conservation, water reuse, groundwater desalination, and energy development and water use.

### CENTER OBJECTIVES

- Establish personnel and lab facilities to support applied research, demonstration, testing, evaluation, technology transfer, education and training
- Conduct technology transfer, training and extension education programs for each theme area across the state
- Establish improved methods for efficient and sustainable use of water for industry, agriculture and energy development
- Establish an industrial assessment program to provide assistance to industry in identifying and implementing water conservation best practices
- Advance application of research in groundwater desalination and water use/reuse for energy production using a technology-to-market approach

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Water Conservation and Technology Center

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The Texas A&M AgriLife Extension Service and the Cooperative Extension Program have been dedicated to serving Texans for nearly a century. The agencies were established in 1915 under the Smith-Lever Act to deliver university knowledge and agricultural research findings directly to the people. The extension program in Bexar County is part of the statewide AgriLife Extension and the Cooperative Extension Program at Prairie View A&M University. It is a component of The Texas A&M University System and is linked with Texas county governments and the national Cooperative Extension System. The Bexar County extension program values and promotes citizen and community involvement, scientifically based education, lifelong learning, and volunteerism. The extension program delivers practical, research-based knowledge to Bexar County and the San Antonio area. Its expertise and educational outreach pertain to the food and fiber industry, natural resources, family and consumer sciences, nutrition and health, and community economic development.

The Extension program in Bexar County custom-designs its programs through committees, relying on residents for input and for help with program delivery.

In 2011, the Extension program in Bexar County engaged 32,887 youth in 4-H clubs, youth development activities and school enrichment programs. From 2009 to 2011, 46 high school graduates, all members of area 4-H clubs, received more than $672,000 in scholarships. AgriLife Extension helped more than 4,000 farmers and ranchers deal with the changing structure of production agriculture by providing them with practical marketing and management tools for improving their net returns. AgriLife Extension also educated more than 7,000 people throughout Bexar County on landscape and water conservation, drip irrigation, reduction of fertilizer and pesticide use, landscaping energy conservation, reduction of wastes entering the landfills, and technologies to reduce the impact of drought on agriculture.

**Impact — FY11**

- Educational programs presented: 3,582
- Attendance at educational programs: 444,803
- Individual contacts: 224,485
- Volunteers involved: 3,943
- Volunteer hours: 123,342 valued at $2,634,585

“Texans turn to AgriLife Extension for solutions, and its agents and specialists respond not only with answers but with a significant return on investment to boost the Texas economy.”

Guadalupe Landeros, County Extension Director for Bexar County
Texas A&M AgriLife Extension Service
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