ENVISION

A newsletter from TxDOT's Environmental Affairs Division

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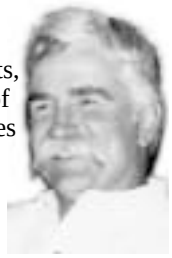
El Paso District's River Road wins Environmental Achievement Award

By JIM DOBBINS
Environmental Affairs Division

Thomas R. Mangrem and the Alpine Area Office staff of the El Paso District walked off with top environmental honors when TxDOT recognized the winners of the 1997 Environmental Achievement Award on June 23 at the Transportation Planning and Development conference in Austin.

The Environmental Achievement Award recognizes the best examples of projects and processes that fulfill transportation objectives while enhancing the natural and human environment. This award goes to the district whose employees have contributed most significantly to the natural environment of Texas highways through the preservation, protection and enhancement of native plants, endangered plant and animal species, natural topography, waterways and wetlands, pollution prevention and abatement efforts, and protection of cultural resources at all stages of project development.



Thomas Mangrem

1997 marks the first year the Environmental Affairs Division (ENV) has shepherded the Environmental Achievement Award. This award began in 1980 as the Scenic Preservation Award, an outgrowth of Lady Bird Johnson Highway Beautification Award which predates it by a decade. In 1990 the award was renamed the Environmental Achievement Award. The Construction and Maintenance Division oversaw the presentation of the award from its inception until this past year.

The Environmental Achievement Award consists of a certificate of appreciation presented at the conference; a tree of the winning district's choice, from the nursery of their choice, its value not to exceed $50 in value; and a plaque produced by the district sign shop to be placed in front of the tree on the district grounds.

The winning entry consisted of rehabilitation work performed on Ranch Road 170,

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In this issue

Crawford part of TxDOT's archeology roots

By JIM DOBBINS
Environmental Affairs Division

Working for the old Texas Highway Department when several of his present day co-workers at ENV were still in diapers, Daymond Crawford has seen a lot of Texas and a lot of Texas history and pre-history as a TxDOT archeologist.

Crawford was the third archeologist hired when the Texas Highway Department began its archeology program under the auspices of the Highway Design Division in 1971. Before joining the department, Crawford worked for the Texas Archeological Salvage Project for five years. He and other project members' task was to visit reservoir sites then under construction, such as Amistad (near Del Rio) and Toledo Bend (on the Louisiana border in East Texas) and retrieve artifacts from archeological sites that would soon be under water.

Crawford's interest in archeology dates back to his childhood in Burnet.

"I found arrowheads when the level of Inks Lake and Lake LBJ would fall," he said. "After accumulating a considerable collection of these points, I started visiting museums and reading books to learn more about the people who made them. What really got me interested in an archeology career was the archeological excavation I worked on the summer I turned 18, that hooked me."

TxDOT historical archeologist John Clark first met Daymond about 1966 when Clark was with the Texas Archeological Salvage Project. "He (Crawford) brought in some prehistoric dart points that he had found at Lake Buchanan. Up until then these darts had been categorized as being of a certain common type. Daymond's contention was that they were different, and should be categorized separately. Another archeologist who was working there at the time, Dee Ann Story, convinced Daymond to write a paper on his findings, which was published in the Bulletin of the Texas Archeology Society. Daymond went to work for the project

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LaBelle excavation turns up more artifacts than expected

By JIM DOBBINS
Environmental Affairs Division

The excavation in Matagorda Bay of French explorer La Salle's ship, La Belle, was completed in mid-April. Texas Historical Commission archeologists made a number of amazing discoveries.

The recovery of La Belle, funded in part by two TxDOT transportation enhancement awards totaling $580,016, was originally scheduled to conclude in November of last year. The excavation was slowed by two factors First, the remarkable state of preservation of many fragile artifacts – such as rope, leather and cloth – required more careful recovery techniques. Second, instead of only 20 percent of the hull remaining, almost all of the starboard (right) side of the wood vessel remains intact.

A picture of life aboard a 17th century French sailing ship is developing as artifacts are examined. The following is a list of some of the more remarkable artifacts recovered from Davy Jones's locker:

• La Belle's bilge pump, used to keep in check the water leaking into the ship's hold.

• Two additional cannons, similar to the one recovered by divers in 1995, and a wooden gun carriage.

• Evidence of vermin, in the form of rat skeletons and cockroach eggs, which once infested La Belle.

• 700 feet of anchor rope, lying intact in a large coil.

• The complete skeleton of a colonist. Remarkably, after more than 300 years under water, the skull still contained some brain matter.

• A leather wallet that contained two combs – one with very fine teeth used for removing lice, fleas and the like.

• Much of the ship's rigging – 12 wooden blocks, four deadeyes, three cleats, ropes, pieces of sail cloth and pulleys (in working order!) with rope still attached.

• Three boxes of flintlock muskets.

• A gunpowder flask, which would have been used to load muskets.

• Nine leather shoes and boots, including a square-toed boot.

• Barrels filled with iron tools for use by the colonists.

• Cooking utensils and dinner ware – nested copper alloy kettles; a colander; a ladle; stacks of pewter plates once owned by Sieur de Le Gros, an expedition officer who died from a rattlesnake bite; a metal bowl with the name of its owner, "C. Barange," still clearly marked on it; 10 intact jars and pitchers; tableware; and square glass bottles with lead caps.

• A crucifix with wooden beads and a wooden cross with a gilded figure of Christ.

• A swivel gun, a heavy shotgun-like anti-personnel weapon.

• Ship's timbers with the shipwright's marks still clearly readable. For example, one board is marked "X T" at the end, indicating that the board was to go on the tenth frame (Roman numeral X) of the "tribord" (the French word for "starboard" or right) side of La Belle.

• An arrowhead, possibly an expedition member's souvenir that was either retrieved from an arrow shot at the French or bartered from the Indians.

Following the recovery of all the remnants of La Belle and her cargo, the painstaking task of conserving the artifacts has taken center stage. Preservation work is now under way at the Conservation Research Laboratory at Texas A&M University. The items recovered from the ship and the ship's hull will eventually be displayed in one or more museums across the state.

Texas Historical Commission Photo

Pewter plates and pottery vessels, including cylindrical white Faience jars, are among the artifacts recovered from *LaBelle*. The Faience jars are typical of 17th century pottery.

Crawford: Really has seen it all

(Continued from Page 1)

shortly after that."

Crawford's first big job after joining the department was conducting archeological surveys along the proposed route of Interstate 10, between Junction and El Paso – a distance of 434 miles. What followed for Crawford were many more miles in every corner of Texas.

"I figure that I have driven close to a million miles while on the job these past 26 years. I have visited every county in Texas, and have visited practically every TxDOT residency office," Crawford said.

What does he like most about his job?

"I enjoy traveling around the state and meeting and working with the folks in the districts," he said.

And what does he dislike the most?

"That's easy, the paperwork. I have never been too fond of that, but it is necessary," Crawford said.

Crawford has made three finds that stand above the rest. He located the Wilson-Leonard Site near Austin. This site is best known for the so-called "Leanderthal" woman, one of the earliest intentional burial sites ever found, dating to about 10,000 years ago. The site has been likened in importance to the fabled Rosetta Stone because a broad outline of human prehistory in Central Texas has been discerned as a result.

"I had no idea how important this site would become when I found it," he said.

Photo by Richard Goldsmith

ENV archeologist Daymond Crawford examines an artifact.

People have become much more conscientious of the environment and our archeological heritage – this used to be the biggest obstacle that we had to overcome. --Daymond Crawford

Crawford pinpointed the site that became known as Loma Sandia, a prehistoric cemetery and campsite in Live Oak County. This site contained about 205 prehistoric burials in the highway right of way, dating back to about 850-550 B.C.

Crawford's favorite discovery was at an excavation along FM 690 in his native Burnet County.

"I was allowed to be crew chief on the dig following its discovery. What we unearthed turned out to be the earliest evidence of prehistoric house-like structures in Texas. Somewhat like wigwams, conical-shaped huts of nomadic Indians occupied this site periodically beginning about 5,000 B.C. until around 1,000 A.D. These huts probably had wooden frames and were covered with animal hides. I'm very proud of that find," Crawford said.

Besides ancient sites, Crawford has seen changes in modern attitudes.

"People have become much more conscientious of the environment and our archeological heritage – this used to be the biggest obstacle that we had to overcome. The (TxDOT) workforce has changed a lot too – there are many more folks from different backgrounds than there used to be," Crawford said.

Crawford's present responsibilities include the Abilene, Brownwood, Bryan and San Angelo Districts, "prolific areas for archeological sites," Crawford said.

"Daymond is really knowledgeable about Texas archeology – he has been at it all his life! He is easy to work with and enjoys sharing what he has learned over the years with others," said Jerry Henderson, a TxDOT archeologist and co-worker of Crawford's for 20 years.

Henderson said, "He was the only archeological surveyor we had for many years. He would find archeological sites and the rest of us would then come in and excavate them."

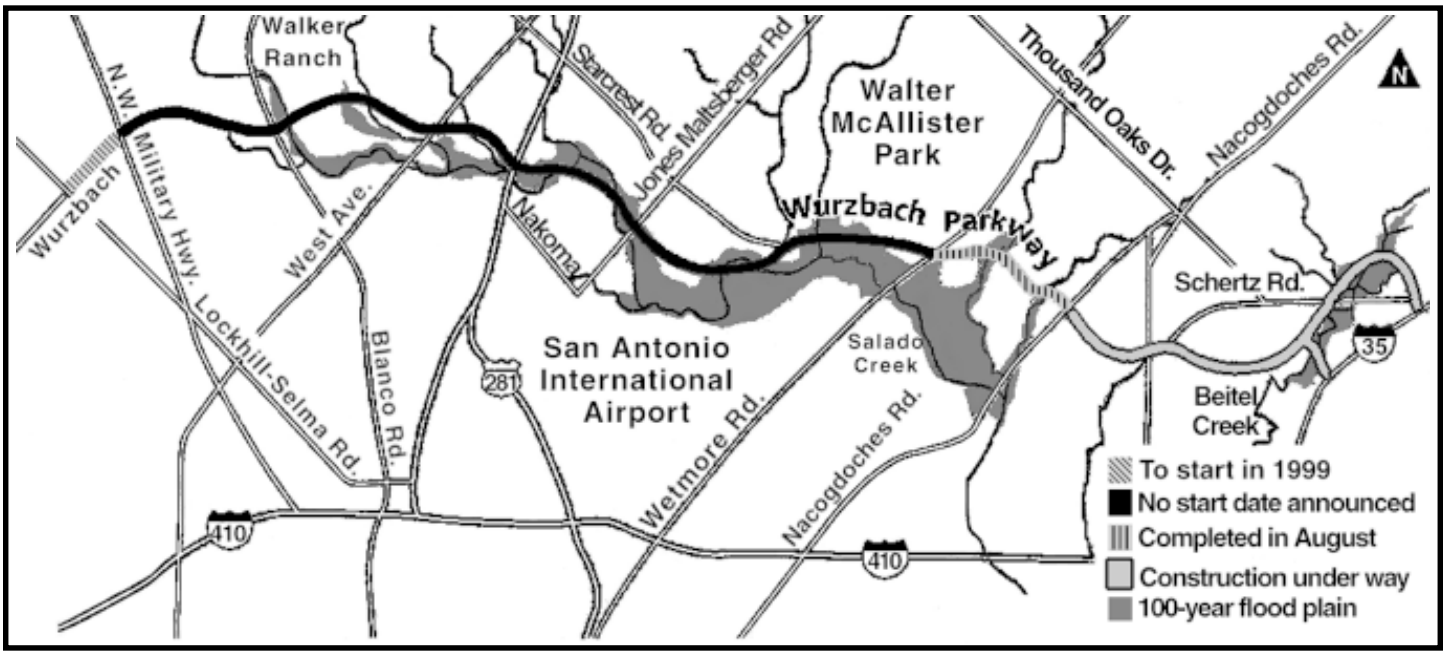
Crawford and his wife, Ramona, reside in Burnet. They have a 15-year-old daughter, Heather, and a son, John, who turned 17 in June. In his free time Crawford enjoys fishing and hunting.

"I live from one deer season to the next," he said.

What's in Crawford's future?

"I plan on working here for another four or five years, until my daughter moves on. Then I imagine it will be time to hang up my shovel," Crawford said.

As the song goes, "I saw miles and miles of Texas, all the stars up in the sky..." seems to appropriately sum up Crawford's TxDOT career.



Wurzbach Parkway project aims for environmental friendliness

Challenges include landfill, wetlands, archeological site

By MARY T. RICHARDS, P.E.
San Antonio District

The Wurzbach Parkway is a $99 million, east-west 12-mile controlled-access roadway between Loop 410 and Loop 1604 across northwest San Antonio. The development of the Parkway was initially intended to be a traffic reliever for congestion along IH 410 and other various arterials, but traffic experts believe this proposed roadway will also relieve the rapidly increasing traffic on the outer loop, 1604.

The parkway requires a minimum of 120 feet of right of way for the ultimate six-lane divided facility. The controlled access designation for the roadway enhances mobility by preventing the introduction of driveways and road-level intersections. This controlled access feature also discourages development along the parkway, creating a "buffer zone" to protect greenbelts.

At major intersections, 200 feet of land will be acquired to accommodate "flyovers." These "flyover" bridges will allow through traffic to avoid delays traffic lights. Frontage roads are incorporated into the parkway only between West Avenue and U.S. 281.

Construction on the parkway began in August 1994 between Wetmore and Nacogdoches and that section was completed in August 1996. In late 1995, construction began on the extension of Thousand Oaks, which should conclude this summer. In October 1996, construction began on the section of the parkway between Nacogdoches Road and IH 35 at O'Connor Road at a cost of $23.1 million. This project should be completed in mid-1999. The portion at the beginning of the parkway (Lockhill-Selma to N.W. Military) is scheduled for letting in June of 1998. The remaining sections will be constructed as funding becomes available.

As initially conceived, the parkway did not include other modes of transportation, such as bicycle lanes and pedestrian amenities. TxDOT placed the parkway on the local area's bicycle mobility plan and separate bicycle lanes adjacent to the roadway section are now designated. TxDOT is currently investigating the addition of sidewalks to the parkway.

The planned parkway path curves through mostly undeveloped and some undevelopable land and will require about 250 acres of right of way. The parkway passes through several archaeological sites, a known landfill and is adjacent to several suspected abandoned dumps and known leaking underground petroleum storage tanks. It also crosses creeks 19 times (including the Salado five times), goes through more than an acre of wetland and parallels and traverses floodplains teaming with wildlife. Nearly half the route is over the Edwards Aquifer Transition Zone.

The San Antonio District has taken proactive measures to preserve the natural habitat and green space while protecting natural resources. TxDOT plans no major channelization of creeks, no changes to 100-year floodplains and will construct bridges to cross creeks wherever possible. To compensate for impacts to a small area of wetlands at Beitel Creek, a comparable wetland was "recreated" nearby by banking the soil to preserve seed material and then respreading it in a large, flat, slow-draining pond. During a recent site visit, district staff saw that the wetland was definitely detaining water, showed signs of wetland vegetation and even

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Life-cycle Cost Analysis might be in your future

By ORLANDO VILLA JAMANDRE Jr.
Environmental Affairs Division

Due to recent federal legislation, TxDOT engineers and planners must now analyze life-cycle costs along with traditional engineering issues and environmental impacts for high-cost National Highway System (NHS) projects.

That new Life-Cycle Cost Analysis (LCCA) requirement is a result of the National Highway System Designation Act (NHSDA) of 1995. NHSDA – by adding a subsection to Section 106 of Title 23 of the United States Code – mandates that an LCCA be performed for each NHS project with a usable segment cost of $25 million or more in order to be eligible for federal aid funding.

A TxDOT task force, in cooperation with Federal Highway Administration (FHWA), is currently looking at different options on how to incorporate LCCA into the project development process. The task force consists of representatives from FHWA, districts, divisions and a metropolitan planning organization. Serving as chairman and deputy-chairman, respectively, are David Peeples Jr. (Wichita Falls) and Phillip Russell (Bryan). Other members include John Nichols (FHWA), Mike Leary (FHWA), Chris Olavson (Houston), Judy Ramsey (El Paso), Jerry Selby (Transportation Planning & Programming), George Lantz (Construction & Maintenance), Mark Marek (Design), Orlando Villa Jamandre Jr. (Environmental Affairs), and Michael Copeland (North Central Texas Council of Governments).

What is a Life-Cycle Cost Analysis (LCCA)?

LCCA is a process for evaluating the total economic worth of a project by analyzing initial costs (i.e., planning, design, construction) and discounted future costs (i.e., maintenance, operation, reconstruction, rehabilitation, restoration, resurfacing) throughout a project's design life. Non-monetary and secondary factors, such as user delays and vehicle operating costs, are other variables that can also be factored into the analysis. By providing a systematic analysis of expected benefits and costs that can be measured and discounted over the full life span of a proposed project, an LCCA can help maximize the investment return of scarce highway resources.

The results of an LCCA can potentially influence a project's mode choice, type selection, or final project design, and therefore should be conducted as early as possible in the project development process. In the past, LCCA has been used as an effective tool to analyze the most economical pavement types and designs. In fact, the task force will simply be formalizing a process that many districts are currently using on an informal basis, especially with regard to pavement, which can typically comprise at least 60 percent of a project's total cost.

For a majority of projects, the LCCA documentation will be incorporated into a Major Investment Study (MIS). However, if a qualifying NHS segment will not have an accompanying MIS, then the LCCA requirement will be included in a project's National Environmental Policy Act documentation. TxDOT will implement the LCCA process starting Sept. 1. A copy of the LCCA report can be obtained by sending a request via GroupWise to OJAMANDR, or by calling 512-416-3005.

Information highway meets Caminos Reales

By JIM DOBBINS
Environmental Affairs Division

With thanks in part to TxDOT, three San Antonio high school students recently were "shown the money" when each collected a $6,000 college scholarship.

Lee High School's Jennifer Parlett, Josh Frkusha and Patrick Mendez developed an Internet web site entitled "Mysteries of the Caminos Reales." This site was entered in the ThinkQuest competition sponsored by Advanced Network and Services, Inc. Their web site garnered fourth place in the competition, good for a $6,000 scholarship for each student, and $1,000 for the school and each coach.

How was TxDOT involved? As part of the tricentennial observation of the historic Old San Antonio Road (Caminos Reales or "Royal Roads"), a number of a events took place. The Old San Antonio Road Historic Preservation Commission decided that a TxDOT-sponsored education curriculum aimed at elementary and secondary schools was needed to enhance public awareness of the road's international historic significance. In 1992, TxDOT approached the University of Texas at San Antonio (UTSA) about developing the educational curriculum related to the Caminos Reales. TxDOT awarded UTSA $28,190 to get the program started, which was matched by an offer of $70,000 worth of in-kind services by the university.

The curriculum has been developed with the help of San Antonio area teachers, who used some of the materials in their classrooms. When the ThinkQuest competition was announced, interested students were assembled into teams to develop educational web sites. The curriculum developed for the Caminos Reales educational kits were a natural fit for the competition.

"Mysteries of the Caminos Reales" (address: http://tqd.advanced.org/2832/) was developed at UTSA's New Media Lab, which also provided software and hardware to construct the web site. The page is designed to teach students from grades four through 12 about the historic Spanish road and what lies along its path. Subjects that can be explored via the web page include: Indians, animals, caves,

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Looking back at TxDOT...80 Years of Progress

Modern Texas highway system rose from muddy, unpaved past

TxDOT this year marks 80th anniversary of its 1917 creation

By STEVE SADOWSKY
Environmental Affairs Division

At the turn of the 20th century, Texas roads remained almost as primitive as the first trails crossing the territory. The state had no organized system of roads, and the responsibility for building and maintaining public roads rested with the counties, resulting in an uneven standard of quality throughout the state. Groups of concerned citizens and automobile owners began to agitate the state legislature for state aid in roadway development, including the establishment of a centralized state highway department.

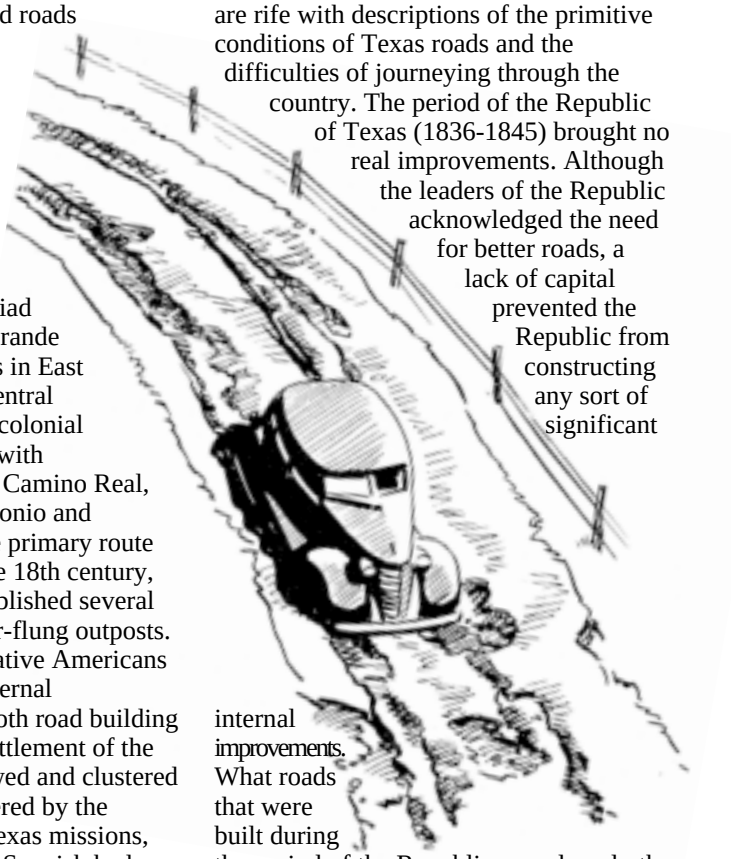
These groups argued that state control of the roadways would result in uniform road improvements. However, despite the efforts of good roads advocates, the Texas legislature proved unwilling to enact roadway development reforms. It was only after the federal government established conditions for the receipt of federal money for roadway construction in 1916 that Texas created a state highway department to administer those funds. The early years of the highway department were rocky, but under the leadership of state highway engineers Gibb Gilchrist (1928-1937) and DeWitt C. Greer (1940-1967), the Texas Highway Department (renamed the Texas Department of Highways and Public Transportation in 1975 and the Texas Department of Transportation in 1991), planned and built one of the nation's finest road networks.

The creation of the Texas Department of Transportation related directly to the need for better roads caused by the growing popularity of automobiles after the turn of the 20th century. Early Texas automobile enthusiasts found Texas road conditions deplorable; they organized local and statewide groups to lobby for roadway development and improvement. A brief overview of the history of road building in Texas will illustrate the conditions prompting good roads advocates to action.

Native American trails were the first "roads" in Texas, followed by Spanish and Mexican colonial roads in the 18th and early 19th centuries. The Spanish erected missions in the regions of San Antonio (Bexar), Goliad (La Bahia), and the Rio Grande valley, with later missions in East Texas and as far east as central Louisiana. Early Spanish colonial trails linked the missions with settlements in Mexico. El Camino Real, the road between San Antonio and Nacogdoches, became the primary route through the territory in the 18th century, although the Spanish established several other routes to connect far-flung outposts.

Continuing raids by Native Americans and a lack of funds for internal improvements impeded both road building and successful Spanish settlement of the area, for settlement followed and clustered around the protection offered by the missions and presidios. Texas missions, never as successful as the Spanish had hoped, were secularized by the turn of the 18th century. With the decline of direct Spanish influence, land-hungry Anglo-Americans began to migrate into present Northeast Texas along such early trails as Trammel's Trace; entrepreneurs set up ferries and trading posts on the Sabine and Neches rivers.

Mexican independence in 1821 coincided with an economic depression in the United States; both conditions accelerated the pace of Anglo-American migration into Texas. Empresario Stephen F. Austin charted a series of maps to lure prospective settlers to his colony, and planned new routes for Texas. However, travelers' reports of the 1820s and 1830s are rife with descriptions of the primitive conditions of Texas roads and the difficulties of journeying through the country. The period of the Republic of Texas (1836-1845) brought no real improvements. Although the leaders of the Republic acknowledged the need for better roads, a lack of capital prevented the Republic from constructing any sort of significant internal improvements. What roads that were built during the period of the Republic were largely the result of county efforts; counties were authorized to draft the services of all free able-bodied men between the ages of 18 and 45 for road construction and maintenance, but Texas roads remained primitive. Stumps obstructed the way of carts and carriages, bridges were nonexistent and roads degenerated into muddy quagmires after a rain. The State of Texas made few improvements after the annexation of the Republic to the United States, and Confederate Texas was engulfed in the war effort, unable to provide internal improvements during the Civil War.



After the fall of the Confederacy, Texas

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Looking back at TxDOT...80 Years of Progress

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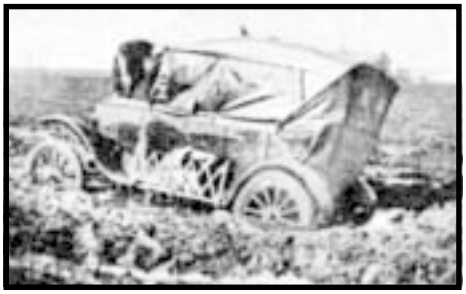
became a railroad empire. Road construction and maintenance remained secondary to attracting railroads to the state. Although Reconstruction Governor E.J. Davis passed a state road bill in the early 1870s, it was repealed by Redeemer Democrats in 1874. Road construction and maintenance remained in the hands of the counties. In 1879, the legislature formalized county control of roads, again, as in the days of the Republic, allowing counties to draft the manpower services of their able-bodied male citizens between the ages of 18 and 45 for up to 10 days a year for road work. Financing road work proved problematic, especially in more populated areas where the demand for roads was greater. An 1883 constitutional amendment allowed counties to assess a road tax, but resources for road construction and maintenance remained scanty. In 1903, the legislature authorized county governments to issue road bonds for construction purposes, but local control of the road system resulted in vast differences in quality from county to county, and retarded the development of a statewide road network. More populated counties built and maintained a road system, with Dallas, Tarrant, Harris, Bexar, Hunt, and other large counties building paved roads between 1910 and 1912. However, smaller, poorer counties saw few if any roadway improvements and roads throughout the state were generally in poor condition.



A car mired in what was known as the "Eddy mud hole" on Highway 2 in Falls County in 1913. Local farmers kept teams of mules at the bog and according to *Texas Parade*, which published this photo in 1935, the farmers "reaped a golden harvest" from motorists until the state paved the road. *Texas Parade* was the magazine published by the Texas Good Roads Association.

File Photo

Delegates to the 1913 Texas Good Roads Association (TGRA) congress held in Corpus Christi take time to pose for a photo. A TGRA backed bill to create a highway department passed the Legislature that year, but was vetoed by the governor.

Improved rail facilities, active promotion of immigration, and the establishment of new towns all helped boost Texas' population to more than 3 million in 1900. The rapid development of the state in the late 19th century brought the need for better roads to the fore.

General Roy Stone of the U.S. Office of Road Inquiry criticized Texas in an 1895 good roads convention in Houston for lagging behind every other state in road development. Railroad interests joined the drive for better roads, as the Katy Railroad sponsored "Good Roads Trains" as part of an educational campaign to encourage local communities to improve their road facilities. Automobile enthusiasts organized the Texas Good Roads Association in 1903 to promote state involvement in road construction, but the association collapsed in 1907 after its failure to persuade the legislature to pass road legislation. However, good roads associations in other states had prevailed; by 1907, 20 states had established highway departments.

The Associated Secretaries of Commercial Clubs of Dallas elected a committee to promote road development in 1906, and similar activities in the state, including the establishment of a chair of highway engineering at Texas A&M and the inauguration of a pavement material testing lab at the University of Texas, led to the formation of a second Texas Good Roads Association (TGRA) in 1911. The TGRA engaged in an educational campaign for improved and standardized roadways, and organized 126 chapters by 1913. However, in 1913, Texas was one of only six states without a state highway department. As the number of automobile registrations in Texas continued to skyrocket, it became clear that Texas' road system was inadequate.

The impetus for the creation of Texas' state highway department came from the enactment of the Federal Highway Bill of 1916, which allocated federal funds to the states for road construction. Under the 1916 law, only states with a state highway department could receive federal money for roads. The TGRA and legislators mounted an intensified campaign to establish a highway department to administer the federal funds. Representative Leonard Tillotson of Sealy introduced House Bill 2 to create a state highway department. Governor Jim Ferguson signed the bill into law on April

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4, 1917. The law authorized the establishment of a state highway commission, consisting of three individuals to be appointed by the governor for two-year terms, and the creation of the office of state highway engineer to oversee highway projects. Governor Ferguson appointed Curtis Hancock of Dallas, Hugh C. Odle of Meridian, and Thomas R. McLean of Mount Pleasant to the first state highway commission. One of the commission's first actions was to appoint George A. Duren, former Corsicana city engineer, as Texas' first state highway engineer. Fees derived from motor vehicle registrations were to provide the operating budget of the new department, which was authorized to finance up to a quarter of the cost of road construction, and was limited to assisting the construction of no more than 10 miles of roadway in any one county during any one year. Counties retained control over planning roads. County engineers submitted plans and specifications to the state highway engineer for approval; the counties were reimbursed up to the amount allowed from the state highway fund.

The new state highway department began business at a June 21, 1917, public hearing at Mineral Wells. The commission provided for a field organization of the department, with division headquarters at Dallas, Fort Worth, Amarillo, Houston, San Antonio, and San Angelo. None of the division headquarters were established; instead, the department hired three division engineers-at-large in September, 1917. Field districts were established in May, 1919, with division headquarters at Dallas, Fort Worth, Abilene, Amarillo, El Paso, Austin, San Antonio, and Eagle Lake. The Abilene office moved to San Angelo later in 1919, and the Eagle Lake office moved to Bryan in 1920.

The first department-sponsored construction was a 20-mile section between Falfurrias and Encino in Brooks County. Work on the 16-foot wide untreated flexible base roadway began in October 1918 and was completed in June 1920. The first hard-surfaced project for the new department was a 25-mile route across Hays County that began in July 1918 and was finished in March 1919.

Despite the creation of the state highway department, road planning in Texas continued on a county level, effectively preventing the development of a statewide road system. A 1921 amendment to the 1916 Federal Aid Road Act required each state to designate a state road system by 1925, and further required the centralization of financing for road construction and maintenance in the state highway department. This last provision caused significant problems for Texas, as the counties retained control over road funding, and county commissioners jealously guarded their jurisdiction. In April 1922, the Texas Highway Association advocated a state-controlled highway system with sufficient state funding to match federal grants to construct and maintain an adequate highway network. The association's work, coupled with public and legislative support favoring state control over highway construction, brought about the passage of Texas' 1925 highway law, turning financial control of the state's roads to the highway department. However, local involvement in roadway planning still prevailed, as each county continued to have the power to authorize highway work on the state road system. The state paid the costs of construction and maintenance on the state network, and the county reimbursed the state highway fund for the work.

The legislature assisted the development of the state road system by passing a gasoline tax to supplement motor vehicle registration fees as the department's source of revenue. One fourth of the gasoline tax was reserved for the School Fund; the remainder went to the highway department. The legislature passed an increase in the gasoline tax in 1927 and again in 1929, which provided the financial resources necessary for large-scale highway construction. In 1929-1930, the department built 1,773 miles of new highways and improved 629 miles of existing roads.

With added revenues and responsibilities, the highway department continued to grow. From a starting staff of 10 officed in a corner of the House of Representatives chamber in the Capitol, the department moved to the second floor

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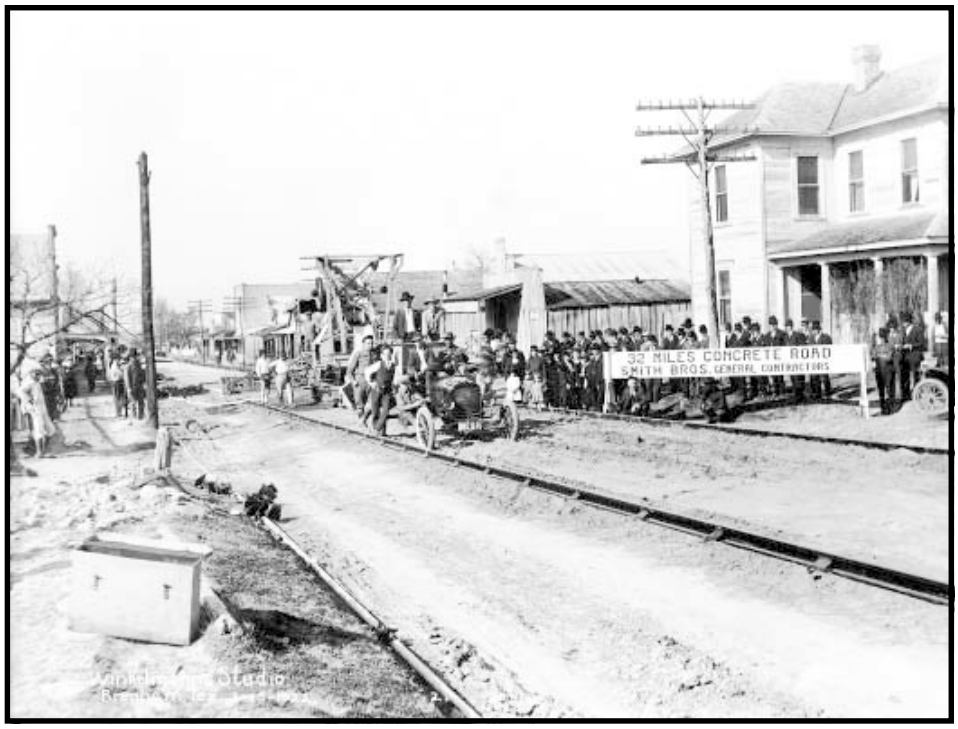

File Photo

A 1922 paving job in Chapel Hill of 32 miles of concrete. The highway is SH 20, which later became U.S. 290.

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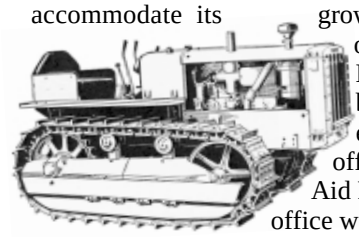
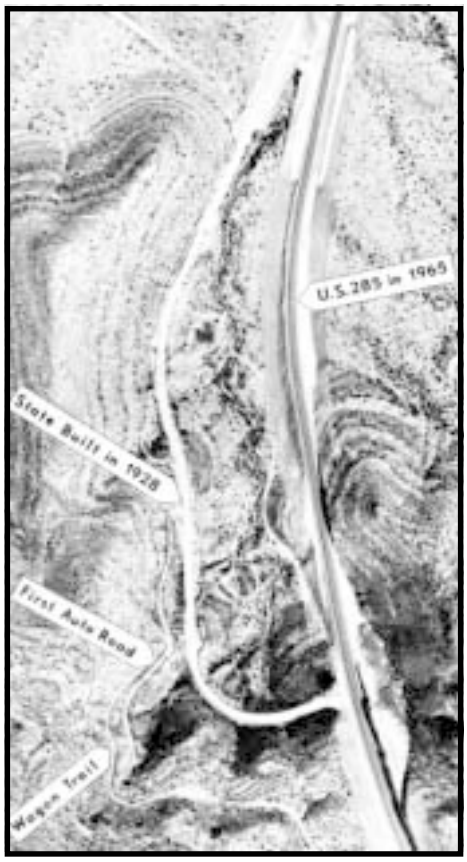
of the State Office Building (the Land Office Building, southeast corner of Eleventh and Brazos Streets, Austin), to accommodate its growing operations.



In 1918, the bridge engineer's office and the Aid Projects office were created. The bridge engineer's office prepared standards and special designs for structures and approved designs submitted by the counties as well as making inspections and supervising county construction of bridges and culverts. The Aid Projects office acted as liaison between the highway department and the counties. An assistant highway engineer's office was created in 1919, as was the Materials and Tests Division, established to examine the quality and quantity of materials, and supervise testing at laboratories set up at the Agricultural and Mechanical College and at the University of Texas. By 1921, the department had four divisions: the Administrative Division, comprising the state highway engineer and clerical, auditing, and bookkeeping sections; the Registration Division, which issued and recorded motor vehicle licenses; the Engineering Division, comprising materials and tests, bridge engineering, maintenance, and a drafting and checking section; and the Federal Equipment Division, which obtained and distributed surplus World War I equipment for road construction. The department continued to expand in 1923, adding the Construction Division, charged with supervising the county engineers in designations and construction, and the Equipment Division to purchase equipment, materials, and supplies.

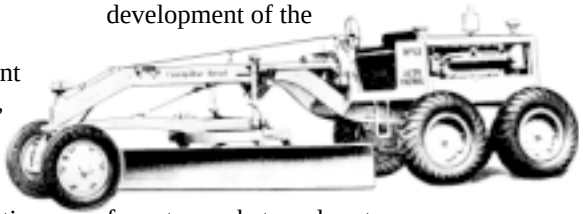
The Maintenance Division was established in 1923 and the department began general maintenance of state highways in 1924. However, due to limited resources within the department, and acknowledging that counties owned road maintenance equipment, the department entered into agreements with certain counties to maintain the roads within their jurisdictions. Not until 1927 did the department undertake the maintenance of state roads with state equipment. The highway commission also went through some changes in the 1920s: in 1923, the legislature increased commissioners' terms from two to six years, and staggered their terms, providing that the term of one commissioner would expire every two years.



An aerial photo of Big Hill north of Sanderson shows the evolution of a road and road-building techniques from wagon trail, to first auto road, to state-built road to modern highway. Reprinted from *Golden Anniversary Texas Highway Department 1917-1967.*

The political significance of the highway department became apparent as it continued to grow in the 1920s, becoming embroiled in the scandals permeating "Ma" Ferguson's tenure as governor. The department and commission faced charges of corruption, and the Federal Bureau of Public Roads ordered a suspension of federal aid to Texas because of the state's unsatisfactory record of road maintenance. To avert the loss of federal highway money, Governor Dan Moody embarked on a program to reorganize the department. Moody appointed a new highway commission, headed by Houston banker Ross S. Sterling. The Sterling commission dismissed all of the Fergusons' appointees, revised the financial operations of the department to a cash basis, and addressed the problem of highway maintenance. By late April, 1927, federal aid to Texas resumed. The revamped department continued to expand in the late 1920s, adding in 1929 the Road Design Division, responsible for locating, planning, and designing new roads, and the Right of Way Division, authorized to acquire right of way for road construction.

The Depression resulted in reduced highway construction and a streamlining of the department's operations under state highway engineer Gibb Gilchrist, appointed in January 1928 and serving until 1937. However, at the same time, the department's authority over the state road system continued to expand, aided by the passage of the 1932 State Assumption Highway Bond Law, which authorized the state to redeem county road bonds from a portion of the gasoline tax revenues, and ending county contributions for road construction, except for the acquisition of right-of-way. The department expanded to meet its new responsibilities; the 16 divisions (districts) of 1923 grew to 25 in 1932. Also in 1932, the Department built its own laboratories to perform routine tests. The Highway Planning Survey was established in 1936 to analyze the existing highway system and fiscal data for the Highway Commission's use in planning better roads. Rural roads also received attention in the 1930s; in January 1937, the department completed a 5.8-mile section between Mount Enterprise and Shiloh in Rusk County, beginning the development of the farm-to-market road system.



Gilchrist inaugurated a program of aesthetics in road construction, preserving

Continued on Page 10

Looking back at TxDOT...80 Years of Progress

(Continued from Page 9)

roadside trees whenever possible, launching a program to plant trees, shrubs, and wildflowers for highway beautification, and planning roadside parks. The department hired Jac Gubbels, former landscape engineer for the City of Austin, to administer the highway beautification programs. To promote tourism, the department opened 13 visitors' information stations on the principal roads into the state. The visitors' stations were staffed by Texas A&M cadets and were completed in time for the 1936 Texas Centennial Exposition in Dallas, the Frontier Centennial in Fort Worth and other centennial celebrations.

New and larger offices were necessary to accommodate the growing highway department. In 1931, the department received legislative approval to construct a new headquarters in Austin. The state highway building, completed in June 1933 at a cost of $455,151,74, is a nine-story cream limestone building with pink granite skirting built around a steel frame. Although still serving as the main headquarters for the department, Austin-based divisions are now officed throughout the city, occupying Camp Hubbard and a Riverside Drive office complex.

DeWitt C. Greer (1902-1986), for whom the state highway building was named in 1981, was appointed state highway engineer in 1940 and served until 1967. Born July 27, 1902 in Shreveport, Greer worked his way up through the ranks of the highway department, starting as the assistant resident engineer in Athens. In 1929, he became the acting district engineer of the Tyler District, and was named Tyler District Engineer two years later. Gibb Gilchrist brought Greer to Austin in 1936 to become chief engineer of construction and design. When Gilchrist retired a year later to become dean of engineering at Texas A&M, Governor Jimmy Allred appointed Julian Montgomery, a reclamation engineer from the Rio Grande Valley, as state highway engineer. Montgomery served in that position for three years; on July 1, 1940, the highway commission named Greer as his replacement.

Greer wanted to build a first-class highway system for the state, but World War II interrupted his plans. The Depression years had slowed highway construction considerably, and by 1943, after heavy military traffic, Texas highways were again in desperate need of repair and expansion. World War II siphoned off labor and materials for the war effort, circumscribing Greer's plans. Restrictions on the use of asphalt made roadway maintenance difficult, resulting in unchecked deterioration of the state's highways. Speed limit reductions to conserve gasoline also hurt the department, which depended partly on gasoline tax revenues for its operations.

Recognizing the worsening condition of the state's roads and the shortfall of state funds, Greer and his engineers went to work in 1943 to plan the state's road needs for the future. Texas had approximately 196,000 miles of roads at that time, but only 26,000 miles of that were paved. Greer estimated that Texas would need $750 million for road construction after the war. Brady Gentry, chairman of the Texas Highway Commission and of the American Association of State Highway Officials, traveled to Washington to lobby for federal aid for road construction, and Congress responded with the Federal-Aid Highway Act of 1944, which allocated $1.7 billion for highway construction. Greer's foresight in planning the state's road system during the war years put Texas ahead in the post-World War II road construction boom.

With sufficient federal and state funds, roadway design plans on hand, and a pressing need for road construction and repair, Greer was able to implement his plans for the state highway network after the war. He established Urban Projects offices in Dallas, Houston, Fort Worth, and San Antonio in 1945 to spur urban freeway development. Texas voters also lent support to Greer's programs, approving the "Good Roads Amendment" to the state constitution in 1946, guaranteeing the allocation of gasoline taxes, drivers' license fees, and automobile registration fees to the state highway fund. By mid-1947, Texas led the nation in putting more road construction under contract, generating a quarter of all the work in progress in the country. In his plans, Greer did not neglect rural roads; passage of the Colson-Briscoe Act of 1949, in which Greer played a significant role, called for appropriations from the state's General Fund for the construction of farm-to-market roads. Greer felt strongly that farm-to-market road construction should fall under the auspices of the state highway department to ensure that the roads would be safely and efficiently engineered and constructed, rather than entrusting those responsibilities to the counties and risking uneven quality.

The Federal Aid Highway Act of 1956 provided the funds necessary for constructing the interstate highway system, authorized by Congress in 1944. More than 3,000 of the 41,000 miles of interstate highways approved by the 1956 legislation were in Texas, and Greer oversaw the development and construction of much of that system. In addition, Greer continued to concentrate on the construction of farm-to market roads in rural areas of the state. Between 1949 and 1957, Texas' paved mileage doubled.

Greer considered providing safe roads to be his primary responsibility as state highway engineer. His administration established design criteria for Texas highways that included the widest minimum roadway width (twenty-six feet), and wide shoulders. Greer also promoted roadway safety research, successfully advocating the establishment of the Texas Highway Institute at Texas A&M, which pioneered "breakaway" traffic signs and improved guard rails.

Greer resigned from the department at the end of 1967 after 40 years of service, 27 of those as the agency's chief executive. He joined the faculty of the University of Texas as Professor of Engineering Practice in 1968, teaching until 1971. Governor Preston Smith appointed him to the Texas Highway Commission in April 1969, designating him chairman. Governor Dolph Briscoe reappointed him to the Commission in 1975 for another six-year term, at the end of which the Legislature named the State Highway Building for him.

Highways have played a central role in the development of modern Texas. In stark contrast to the extent of the state's road network when the highway department began operations in 1917, highways have become the principal means of transportation in Texas. In 1965, over 1,800 Texas communities depended exclusively on their highway connections for transportation facilities.

(Next edition: Through the 1960s TxDOT continues the development of interstate and other highways, deals with rapid development in the state's urban areas and evolves to concentrate during the 1990s as much on maintenance of existing systems as on creating new ones.

Oso Bay dig uncovers Corpus area's pre-history

By JIM DOBBINS
Environmental Affairs

History tells us that the city of Corpus Christi was founded in September 1839. But prehistory uncovered by TxDOT now indicates the site was a thriving community thousands of years before – as early as 2,000 B.C.

An archeological excavation along Ennis Joslin Road in Corpus Christi indicates that the shores of Oso Bay (a small bay connected to Corpus Christi Bay on the east side of the city) was occupied by Native Americans for approximately 3,600 years – until about 1650 A.D. Excavations took place in advance of plans to widen the existing two-lane road to four lanes and add improvements, such as curbs and gutters. These excavations were completed in October.

Archeological digs in this area during the 1930s and 1940s found more than 200 densely clustered prehistoric burials and evidence of human occupation in the form of camp debris. Finds from the current excavation support the earlier findings.

One of the more noteworthy finds is a female skeleton unearthed during the preliminary excavation.

"A single human bone was discovered at the edge of the pit where the skeleton was found. This is a stray bone or part of a complete skeleton. The bone was left undisturbed when the pit was refilled" said David Potter, an environmental coordinator with TxDOT's Corpus Christi District.

Archeologists do not expect to find many prehistoric graves because the primary concentration of graves is not adjacent to the right of way.

Jennifer McWilliams, an archeologist with the contractor, Coastal Archeological Research, Inc., said "There are an estimated 250 to 1000 burials at the Corpus Christi Bay end of the road (outside the right of way). We should learn quite a bit from this site as earlier excavations here were not always thoroughly documented."

More informative items found include shells and fish bones left over from the inhabitants' meals. Many of the shells are from a species of mollusk no longer found in the area.

What else has been learned of these early coastal residents?

"Evidence indicates that these people lived in circular shelters, as crushed shells used as a floor covering have been found at the site" said ENV historical archeologist John Clark.

Photo by Jim Dobbins

Contract archeologists work at the Oso Bay site.

The projected letting date for construction is August 1998. Once completed, city-maintained Ennis Joslin Road will become state-maintained Spur 3.

The findings of this archeological excavation indicate that 19th century settlers of this city by the bay weren't the first to find the area to be an attractive and bountiful home.

ENV's Chuy Gonzalez becomes U.S. citizen

By JIM DOBBINS
Environmental Affairs Division

There is something different about Cultural Resources Management's (CRM) Jesus "Chuy" Gonzalez these days – United States citizenship.

Gonzalez and about 870 others took the oath of citizenship at Trinity University's Laurie Auditorium in San Antonio on Friday, April 11th. CRM's Nancy Kenmotsu, Al McGraw, Ann Irwin and John Clark were on hand to witness this important moment. The ceremony included patriotic music provided by an Army band and addresses by several dignitaries.

Chuy Gonzalez

McGraw was impressed with the ceremony.

"I was surprised at the number of people present and the magnitude and seriousness of the event. I got the impression that the new citizens were experiencing a qualitative change in their lives – that they were stepping through a doorway into a new life" McGraw said .

Irwin was equally impressed.

Irwin said "I found the ceremony to be a very moving experience – it was the first time I've had the opportunity to attend a naturalization ceremony. The pageantry made me feel very proud to be an American. I was very happy to be able to share the special moment with Chuy.

"Citizen" Gonzalez did not celebrate by going to Disney World, instead, he went back to work to celebrate with co-workers. ENV staff hosted a congratulatory potluck luncheon in his honor the following Monday.

The path to United States citizenship was a long one for Gonzalez, a native of Leon in the Mexican state of Guanajuato, about 200 miles north of Mexico City. Gonzalez emigrated to the United States in August 1985, where he quickly settled in Austin. Gonzalez began his TxDOT career the following year.

"It has been a long time since I immigrated. My two boys, Juan (12) and Omar (9) were both born in Texas. Since my home and family are here and there is little reason to return to Mexico, I thought it was time to take the steps to become a citizen."

Gonzalez began the process to become a United States citizen in March 1996. He obtained a list of possible questions related to American history and government, and studied the subjects. This led to an oral test, which Gonzalez easily passed.

"The most difficult question posed was 'Why do you want to become a United States citizen?' – that is a tough one to answer. I answered it the best that I could."

Concerning his new citizenship, Gonzalez added "I don't feel any different, and no one treats me any differently. Everyone at ENV has been very supportive, and I appreciate everything that they have done for me."

Award: Odessa, Pharr also honored

(Continued from Page 1)

the "River Road," which runs along the Rio Grande in Presidio County. Special mitigation efforts to accommodate two wetlands and a prehistoric archeological site were incorporated into the project, which provided two 12-foot travel lanes with four-foot shoulders, as well as corrosive resistant guardrails.

Mangrem, the area engineer, credits teamwork as key to the project's success.

"The hard work of the area office staff on the project, including John Blackman, Howard Lyons, and Don Fuentez who worked with the Design Division on the project design, and Asgeir "Oscar" Asgeirsson, chief inspector, and assistant inspector Skip Rhodes were all vital to the success of the project" said Mangrem.

Also honored were:

Runner Up – Odessa District's Eddie Munoz, Roadway Maintenance Supervisor, for landscaping at the Intersection of US 285 North and Business Interstate 10 in Fort Stockton. This project transformed a barren intersection divider into a desert garden complete with ocotillo cactus, desert willow, cholla, flowering yucca and a rock-lined channel designed to handle run-off from the area's episodic downpours.

Honorable Mention – Pharr District's Velma Garcia, District Environmental Coordinator, for the district's overall environmental program. Programs such as the safety measures implemented to protect endangered brown pelicans who sometimes land on the Queen Isabella Causeway, including "Watch for Pelicans" signs and TxDOT pelican patrols; petroleum soil contamination issues dealt with on the Business 83 project; the State Highway 100 wetland mitigation project; and the reintroduction of the endangered ashy dogweed along right of way in Zapata County were honored.

A review panel of ENV staff read and discussed the merits of each nomination. Wendy Worthey, an Environmental Quality Specialist in the Hazardous Materials Branch was a reviewer.

"The districts are obviously more concerned than ever about the environment – you can tell that the awareness of environmental issues has increased greatly, and the districts are acting on this knowledge" said Worthey. "In evaluating the nominees for this award, it was clear that the winners went the extra mile, over and above what was required by law and department policy."

Photo by Richard Goldsmith

Velma Garcia (center), Pharr District's environmental coordinator, receives an Honorable Mention in the Environmental Achievement Awards announced at the Transportation Planning and Development Conference. Because the awards were kept secret until the announcement, other winners were not present. Announcing the awards are Dianna F. Noble (left), director of ENV, and Robert Cuellar, deputy executive director for Transportation Planning and Development.

Wurzbach: Landfill bridged, wetlands recreated

(Continued from Page 4)

hosted wildlife as noted by the presence of an egret standing in the water.

In addition, about 785 trees – such as mountain laurel, oaks, bigtooth maple, sumacs, willow, cedar elm, sycamore, pecan and ash juniper – have been planted thus far on the parkway. Plans are to plant more native trees and other vegetation for the remaining projects as mitigation for tree removal.

The parkway has also spurred the interest of area residents and government officials in creating a park. The park would be south of the parkway between Blanco Road and West Road on about 100 acres of land currently owned by the City of San Antonio, Bexar County and the San Antonio River Authority.

Wurzbach Parkway traverses a diverse environment and TxDOT has taken this into account by making an effort to balance any negative effects by preserving green space, vegetation, wildlife and riparian systems.

Open house highlights archeology

By JIM DOBBINS
Environmental Affairs Division

Ten-thousand years of Texas history and prehistory were recently on display at TxDOT's Riverside Annex cafeteria in Austin. The event, an open house of the Archeology Branch of the Environmental Affairs Division (ENV), was held April 17th as part of the statewide observance of Texas Archeology Awareness Month. An estimated 500 people attended the three-hour event.

A variety of artifacts were available for inspection and photographs, drawings, videos and demonstrations brought to life the work of TxDOT's archeology staff. Finds highlighted were: the Wilson-Leonard Site, La Salle's La Belle shipwreck, Freedman's Cemetery, Old San Antonio Road and the North Mopac Expressway extension project.

In addition, a hands-on exhibit invited attendees to sift shovel samples through screens in search of artifacts, as is done at archeological excavations. Not all the items found were artifacts.

Photo by Henry Gregory Quinn

These local Girl Scouts were among the 500 people who showed up April 17th for a three-hour open house at TxDOT's Riverside campus in observance of Texas Archeology Awareness Month.

"One girl found a worm," said ENV prehistoric archeologist Robert Perales.

ENV prehistoric archeologist Glenn Goode was the center of attention as he conducted an ongoing flint-knapping demonstration using the same techniques that Native Americans used to make stone tools and weapons, such as arrowheads.

"I started flint-knapping in 1971 when I first went to work for the department," Goode said. "Two former TxDOT archeologists, Frank Weir and Phil Bandy, were into flint-knapping and helped me with it. These days, I usually conduct two or three demonstrations a year for students and archeological groups. I thought the open house was a good forum to show flint-knapping and educate the public and TxDOT employees about archeology."

ENV's archeology staff was pleased with the turnout.

"I thought the open house was informative and gave TxDOT employees and the public a good understanding of what we do (archeology). The hands-on activities were particularly effective" Perales said.

According to ENV historic archeologist John Clark, "The event was much better attended than I expected. People showed a lot of interest, and the demonstrations were effective. I was impressed at the level of interest shown by TxDOT staff. The open house was a good way of getting the word out about TxDOT archeology."

If you missed this event, don't fret. Plans are under way to hold an archeology open house in 1998. Make plans now to attend!

Web site: Caminos Reales

(Continued from Page 5)

missions, plants and geography. The web site also contains a link to the TxDOT home page.

"Without the support of TxDOT for the Caminos Reales curriculum, the web page would not have been possible" said project director Gilberto Hinojosa. "This has been one of the most exciting projects that I have been involved with, and it was made possible by the TxDOT grant. For a relatively small amount of money, TxDOT will have much to show."

The educational curriculum is nearing completion and will be distributed to schools in the near future.

ENV moves across the parking lot

Change has been afoot in the **Environmental Affairs Division (ENV)** since the last **ENV***ision* was published. Most of ENV moved Feb. 7 from the first floor of Building 150 in the Riverside complex in Austin. That first move was across the parking lot to the freshly renovated third floor of Building 118 in the same complex. ENV's **Cultural Resources Section (CRM)** remained in Building 150 until May 16, when its new home on the first floor of Building 118 was finished. Division phone numbers remain the same.

Lain Ellis, an archeologist, joined the **Archeology Branch** of **CRM** as of April 1. Ellis will handle the Waco District as well as contracts and curation of artifacts for the branch. Ellis came to ENV after several years with the Texas Historical Commission (THC). He earned a master's degree from Texas A&M University and is close to completing a doctorate from the same institution.

Jim Abbott started with **CRM's Archeology Branch** Jan. 2 as one of only a handful of practitioners in the field of "geoarcheology," a subject in which he recently completed a doctorate. This specialty involves the use of geological principles to determine how a landscape was formed and how geological processes might have affected an archeological site. Abbott will direct development of a geoarcheological program for TxDOT to identify areas where the department does and does not need to be concerned about archeological sites. He is a native Texan, but has conducted field work in the Dakotas, Greece, Wyoming, Colorado and many regions of Texas, including Fort Bliss and Fort Hood. He and his wife have a 9-year-old daughter and 2-year-old twin boys.

Laurie Marder, an architectural historian, joined **CRM** on Feb. 3. She is handling historic property concerns for the Dallas, Paris, Atlanta, Tyler and Lufkin districts. Marder has a bachelor's degree in art from the University of Dayton, Ohio, and has completed graduate work in historic preservation at the University of Georgia in Athens. She recently worked for the National Guard office at Camp Mabry in Austin coordinating Section 106 reviews and handling historic property issues for them. She also has surveyed historic property with local historic preservation firms.

Jerry Henderson, a 20-year veteran of TxDOT's archeological program, moved in May to the Texas Water Development Board where she is now an environmental reviewer. Henderson handled the Freedman's Cemetery project in Dallas from the late '80s to its conclusion in 1994, as well as many other projects.

Robert Perales, an archeologist with **CRM** for just more than five years and who prior to that spent six months working on the Freedman's Cemetery project, left May 31 to become an environmental quality specialist for the Fort Worth District.

Gary Hammer, an architectural historian, left **CRM** at the end of January after 4 1/2 years with the division. Hammer began a new job Feb. 1 in Boston with the Massachusetts State Historic Preservation Office as a historic preservation planner.

Regina Lauderdale, one of several staff members with ENV under contract with THC, left at the end of November after 3 1/2 years working on **CRM's** Historic Bridge Inventory. Lauderdale bought a Macintosh computer to learn internet skills and six months later was hired by an Austin-based software company to manage and upgrade the company's web site.

Rick Mitchell, another THC contract employee, is now a TxDOT employee within **CRM**. Mitchell had worked on the statewide survey of Depression properties. Since mid-February he has been handling historic property issues for several North Texas districts, including Fort Worth. Mitchell has a bachelor's degree in political science with minors in history and Spanish from Texas Christian University. In 1995 he completed an master's degree in community and regional planning from the University of Texas at Austin with a concentration in historic preservation.

Robert Jackson, a historian who worked on last summer's Historic American Engineering Record survey of

See STAFF, Page 15

Environmental Word Rhymes

by Orlando Villa Jamandre Jr.

Find the pair of rhyming words that complete each of the six environmental questions below. Answers are on Page 16.

Meets attainment?

❒❒❒❒■❒❒❒

Enough people to hold a public meeting?

❒❒❒❒❒■❒❒❒❒❒❒

USACE Nationwide for green frog?

❒❒❒❒❒❒■❒❒❒❒❒❒

Unable to determine National Register eligibility?

❒❒❒❒❒❒❒■❒❒❒❒❒❒❒

Expensive mitigation for endangered cat?

❒❒❒❒❒❒■❒❒❒❒❒❒❒

Noise walls from recycled British jets?

❒❒❒❒❒❒❒■❒❒❒❒❒❒❒

Staff: Some say hello, some say goodbye

(Continued from Page 14)

41 Texas historic bridges, is back this summer under contract to THC. Jackson is handling **CRM's** documentation for more than a dozen historic bridges before he starts a new job in the fall as an assistant professor of communications at Fort Lewis College in Durango, Colorado.

Two new contract historians have been hired as of April 1 through the THC to carry on Lauderdale's and Mitchell's work. They are **John Murphey** and **Daniel Harris**.

Harris is from Vermont and recently graduated with a master's degree in historic preservation planning from Eastern Michigan University. He earned a bachelor's degree in history from Brigham Young University. Before coming to ENV, Harris spent a year handling Section 106 review and National Register issues for the city of Toledo, Ohio.

Murphey earned a bachelor's degree in humanities in 1989 from San Francisco State University. He then moved to New Mexico and got involved in the forest and bio-region conservation. Murphey says he decided to pursue another career "after one day seeing my boss and two other coworkers hanged in effigy by enraged native New Mexicans." He earned master's degree in historic preservation from Eastern Michigan University in 1996 and continued research on cemeteries and ethnic settlements. He has worked with the Michigan State Historic Preservation Office, Michigan Historical Commission and the Department of Natural Resources to survey and write National Register nominations for Depression Era parks.

Renee Chadwick joined ENV Nov. 1 as a human resource specialist. Chadwick came to ENV with experience in two other TxDOT divisions, Materials and Tests Division and the Human Resources Division (HRD).

Sara Barker, a **Communications Section** staff member who handled editing, education issues and also facilitated meetings, moved to TxDOT's Human Resources Division as of June. Barker had been with ENV since September 1993. She is now handling Americans with Disabilities Act issues for HRD.

David Boswell joined ENV on Jan. 13 as the new section manager for**Pollution Prevention and Abatement**. Boswell was with the Texas Natural Resource Conservation Commission. He also has worked for a consulting firm in the environmental field and was with TxDOT's San Antonio District prior to that.

ENV's **Project Management Section (PM)** has been reorganized to increase the efficiency and effectiveness of the environmental review process. The three field areas in Project Management are now branches, each having a branch supervisor supervising the staff and operations of that field area. The three branch managers are **Elvia Gonzalez**, **Jeff Casbeer** and **Tom Bruechert**. Casbeer and Bruechert moved over to PM on April 1 from the **Natural Resources Section (NRM)**, where they had both

See ENV, Page 16

BrainBender

by CRM's Steve Sadowsky

Hazardous Materials

Find the names of these common Haz-Mat terms and of ENV's Haz-Mat team listed in the column at right in the puzzle below. Names may be horizontal, vertical, diagonal, and in reverse order. Letters may be used more than once. (Answers on Page 16.)

A	L	N	P	I	N	I	A	G	N	A	C	E	R	C	L	A
I	S	N	S	V	D	D	I	A	N	S	L	I	R	G	I	A
M	O	B	S	K	S	E		E	X	I	V	J	S	J	S	D
I	E	I	E	R	I	N	R	A	T	A	K	N	I	D	F	P
E	N	L	X	S	R	K	F	A	I	L	R	A	N	T	T	P
N	E	L	C	I	T	I	L	T	A	Y	D	B	E	O	I	R
E	T	O	B	L	O	O	A	O	C	T	O	F	L	L	O	I
L	T	L		L	V	F	S	G	D	I	S	P	O	S	A	L
T	V	I	S	U	H	M	A	K	X	L	C	A	D	R	E	H
O	H	R	A	D	I	O	A	C	T	I	V	E	E	V	D	Y
S	A	Z	N	I	T	B	E	Q	Q	B	S	H	I	C	T	D
S	N	H	V	V	A	T	O	A	P	A	Z	S	H	B	N	R
C	O	N	T	A		I	N	A	T	I	O	N	U	O	O	O
A	I	T	U	D	Z	C	P	G	N	L	Y	O	D	S	I	C
A	T	T	I	E	A	N	I	K	P	N	L	E	F	U	T	A
S	A	M	S	Y	H	Y	A	X	L	L	R		E	O	A	R
N	I	I	R	O	U	V	E	O	O	S	U	P	X	H	B	B
E	D	R	I		Z	G	J	Y	X	T	P		T	V	R	O
B	E	A	A	Y	R	M	U	E	L	O	R	T	E	P	E	N
T		O	S	D	R	E	T	I	G	S	I	A	R	O	C	R
T	E	Q	L	N	L	S	O	X	A	U	O	N	P	A	A	K
N	R	I	B	E	A	U	A		F	I	C	K	I	O	X	T
N	A	A	R		I	S		A	N	R	K	S	N	E	E	A

Asbestos
Contamination
Liability
Explosive
Exacerbation
Hazmat
Volatile
Plume
Remediation
Toxic
Petroleum
Waste
CERCLA
Disposal
Leaking
Tanks
Radioactive
Hydrocarbon
Bill
Terry
Wendy
Scott
Don
David
Erin

Texas Department of Transportation

Environmental Affairs Division
125 East 11th Street
Austin, Texas 78701-2483

Address correction requested

ENV: Staff changes

(Continued from Page 15)

been in the Water Quality Resources Branch. Ken Bohuslav is acting section supervisor.

Todd Ashby, who was a THC contract staff member, moved from **CRM** as of Dec. 2 to become a project manager in **PM** and is now a TxDOT employee.

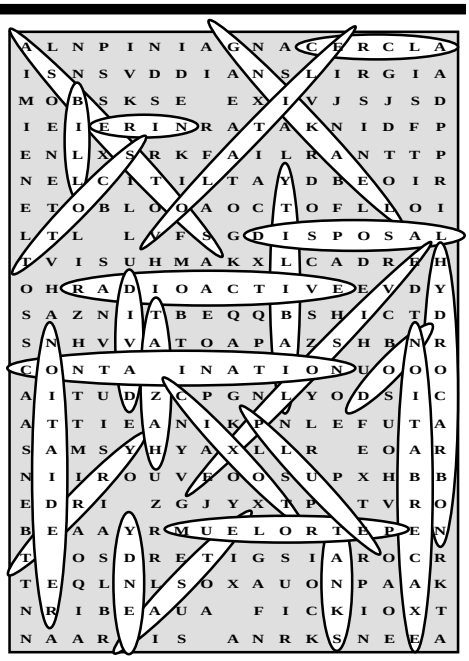
Hugo Bustos, a project manager with **PM**, left April 15 after a year and a half with ENV. He is now executive director of Services For the Elderly, Inc., a non-profit organization that provides in-home services for the elderly and disabled.

Kathleen Strub, who was a project manager with **PM** since November 1995, moved in September to TxDOT's Transportation Planning and Programs Division where she is a planner.

ENV has three summer interns: **Edith Jaurrieta,** a student at Austin Community College, has returned for the second summer in a row to work in **CRM's** archeology lab. Working with Jaurrieta is **Brett Harkwell**, a student from New Mexico. And **NRM** has Lisa Kopeck, a graduate student at the University of Texas at San Antonio, working on the creation of an inventory of wetland mitigation sites.

Environmental Word Rhymes Answers

Fair Air;
Quorum Forum;
Kermit Permit;
History Mystery;
Ocelot Costalot;
Harrier Barrier.



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We welcome ideas for stories and standing features. Submit those to the above address, attention Richard Goldsmith, phone 512-416-2743 or via GroupWise to RGOLDSMI.

Is **ENV***ision* going to the right person in your organization? Please contact us to correct an address or to suggest additions to the mailing list.

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SOY-BASED INK

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