



# TransVista

TRAFFIC MANAGEMENT SYSTEM  
EL PASO DISTRICT

By Victor De la Garza



A national initiative aimed at increasing the capacity and utilization of the United States' surface transportation infrastructure by means other than building more miles of freeways has been actively promoted by government, commercial, academic, and private interests during recent years. The Intelligent Transportation System (TransVista) thrust defined and supported by current and past national administrations has begun to take shape as a viable solution to many of the nation's surface transportation concerns. Higher mobility, increased safety, cleaner environments, enhanced energy efficiency, and better utilization of existing highway facilities.

The Traffic Management Center is the heart of the system. Operators manning workstations watch freeway images on both video monitors display and a large video wallboard display. Off site camera operations is also provided to the City of El Paso at three locations: City Hall's Traffic Management Center, Traffic

Signal Maintenance Yard and 911 Emergency Center, which includes the Police Department, Fire Department and Emergency Medical Service. TxDOT has complete control of the system, but these locations have site pan, tilt and zoom (PTZ) capabilities.

With cameras and inductive loop detectors embedded in the freeways, incidents are detected within seconds. TransVista collects information from multiple loop detectors in each lane of the freeway system at one-mile intervals. These send millions of bits of data to the TransVista Control Center. Here, operators work with the central computer workstations, watching video walls that display maps and other conditions to monitor traffic flow and potential problems. The master computer collects and analyzes data that monitors traffic conditions on the freeway.

Within seconds, Dynamic Message Signs (DMS) display simple messages of what lies ahead. Lane Control Signals (LCS) also change, instructing drivers which lanes to avoid due to an incident or ongoing construction work.



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## TxDOT Tests Traffic Signal Components For Your Benefit

By Brian Van De Walle

We have all seen the latest and greatest signal devices. From ITS to ADA, vendors have always provided us with access to their newest product lines. A big part of our TexITE meetings involves the Highway Products Group display.

So, how do we know if these products will be compatible with the systems we use? Will they work as promised? Will they hold up over time?

The Texas Department of Transportation (TxDOT) puts a lot of time and effort into testing new technologies as they apply to traffic signals. An important consideration is whether an electrical device will operate in a harsh outdoor environment and also be compatible with the system it is working in. One good example is the conversion to LED signal displays.

The reason agencies install LEDs are typically for power and maintenance savings. Remember, however, that signal heads have to operate in the same environment as the controller.

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# Message from the President

by Beth Ramirez

Although my term as President is coming to a close, I look back and realize that we can take pride in many significant changes and major accomplishments. Along the way, I have made friends from all over the state and have been exposed to many different and innovative engineering practices. During my term, I sincerely appreciated the support by our members and give credit to our officers and committee members at the local, section and district levels for so successfully operating such a worthwhile organization.

## Major Accomplishments from June 2001 - December 2002

**Organizational Changes** - This year, the membership voted to transfer our statewide leadership roles from a single statewide section to the district level. Since then, all five local chapters have converted to sections. The reorganization has improved operations, eliminated redundant administrative tasks and ensures all areas of the State are represented at the district level. The District is lead by an executive board of 12 members who are pictured on our website. I sincerely appreciate the hard work and leadership shown by Wayne Kurfees to accomplish this major task.

**Over 75 Meetings per Year Statewide** - When you combine student chapter, section and district meetings in Texas over the past year, there have been over 75 meetings. This is the most important part of our organization; to gather together, exchange ideas and share project experiences.

## **Use of the Web and Computer**

**Technology** - Our organization has done a great job of maximizing the use of computer technologies to improve services. By using e-mail and our website "textite.org" to make announcements and deliver the newsletter, we will save over \$5,000/year. This use of technology could not have

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# International Director's Report

by Wayne Kurfees

My three-year term as International Director will come to a close as of the end of December. Jim Carvell, who will succeed me as of January 1, has attended the two most recent meetings of the International Board and is well prepared to represent District 9 for the next three years.

Here are a few items to report from the most recent meeting of the International Board, which took place at ITE Headquarters in Washington on November 1 and 2:

International ITE Membership – Although the dues renewal rate is down a little (as might be expected with the current economy), total ITE membership has increased slightly from 2001 to 2002.

2003 Annual Budget – The Board approved a 2003 budget of approximately \$8.8 million. It will maintain the current Headquarters staffing level of 29 positions.

New Honorary Member – The grade of Honorary Member is the greatest honor that ITE can bestow. Rafael Cal y Mayor, former Director of Traffic Engineering for Mexico City, was posthumously elected as ITE's 70<sup>th</sup> Honorary Member.

In conjunction with the Board meeting, the Nominations Committee also finalized the selection of next year's International V.P. candidates. I'm pleased to report that they will be Don Henderson from Vancouver, British Columbia and Tim Harpst from Salt Lake City. Don, Tim and incoming International President Jack Freeman of Orlando, Florida will be attending our TexITE Winter Meeting in El Paso, January 23-25, 2003.

As a parting thought, I would like to share my concern that District 9's ITE membership is continuing to decline as a percentage of total ITE membership. Now that the dust has begun to settle from our recent reorganization, I would like to challenge each of TexITE's new Sections to recruit new ITE members from the ranks of the Section Affiliates who regularly attend Section meetings but are not members of International ITE.

I would also challenge each Section to encourage those who are eligible to upgrade their ITE membership. Basically, the requirements are as follows:

Upgrade from Associate Member to Member. An Associate Member can upgrade to Member after 5 years of professional transportation experience, provided that they are "a graduate of a transportation related program at a school of recognized standing" and that 3 of those years have been in responsible charge of transportation engineering work. (If they are not a graduate, they are eligible to upgrade after 10 years of total experience provided that 3 of those years have been in responsible charge.)

Upgrade from Member to Fellow. After 5 years in the grade of Member, one is eligible for upgrade to Fellow if they have (1) "attained sufficient professional statute which may be demonstrated by being a legally registered engineer, by having a peer-referenced license or certification based on education, examination and experience, or by comparable evidence of professional status as determined by the Board"; (2) been in responsible charge of "important transportation or traffic engineering work, including scientific, educational and managerial activities" for at least 5 years; and (3) "demonstrated an active commitment and contribution to the work of the Institute or the profession." Basically, per International Board rules, the transfer to Fellow is virtually automatic for any Member who has been in responsible charge for 5 years if that individual also holds a PE or AICP certification.

In scanning the TexITE roster, I see numerous individuals whom I'm sure are eligible to upgrade and I would encourage each to do so.

In closing, let me express again my appreciation to the members of District 9 for the privilege of serving as your International Director.

# MEETING ANNOUNCEMENT

## JANUARY 23-25, 2003 WINTER 2003 TexITE MEETING EL PASO MARRIOTT EL PASO, TX

The Texas Department of Transportation and City of El Paso Traffic Division is delighted to welcome TexITE to El Paso for the 2003 Winter Meeting. Mr. Jody Short is collaborating a wonderful technical program. In addition to the traffic engineering track, a topic on homeland security will be included. On Thursday we will have technical tours for both the City of El Paso's TMC and TxDOT TransVista Center. We have planned a fun event for you and your family on Friday night at Cattleman's Steakhouse Indian Cliffs Ranch, Inc.

TEEX will also be providing a Design Installation and Maintenance of Detection Systems course in conjunction with the Winter Meeting. The class will be from January 21-23, 2003 at the El Paso Marriott. There is **no cost** to attend the class, but will be limited the first 25 people. This course will provide engineers, signal technicians and newly hired personnel introduction on traffic signal detection. It will cover detector theory, placement, installation and maintenance from both the engineering and the technical perspective. Mr. Les Phelps may be reached at (210) 633-1043 for more information.

The host hotel for the meeting is the El Paso Marriott located at 1600 Airway Blvd., El Paso, TX 79925 and is one-quarter mile from the El Paso International Airport. A complimentary airport shuttle will also be available for your convenience. The rate for this meeting is **\$80.00** (single/double). Reservations can be made by calling 1-800-228-9290. It is very important to the financial success of the meeting that you tell them you are with TexITE.

The Friday night social will be extraordinary. Cattleman's Steakhouse is a large, family-style restaurant on a working ranch. Enjoy the western atmosphere, miles of desert scenery and a spectacular sunset! After an informal meal at the Horseman's Club, we will be able to enjoy a live western band and have full access to the children's zoo, Indian maze or just relax by the colossal fireplace. This is truly a unique opportunity, and we want to see as many family members participate as possible.

Bus transportation to/from the host hotel will be provided.

**Please register as soon as possible.** It helps a great deal. If you are not able to register early, fax in a registration form one week in advance to allow us to get the meal count right and to make name badges. We look forward to seeing you in El Paso.

Local Arrangements Committee-El Paso

### MEETING SCHEDULE

WINTER 2003 TexITE MEETING

#### Thursday, 1/23/03:

10:00a–2:00p	Golf Tournament at Painted Dunes Golf Course
1:00p – 5:00p	Technical Tour
4:00p – 6:00p	Executive Board Meeting
6:00p – 8:00p	Highway Products Group Reception
8:00p –	Tone Def Jam Session, Location: TBA

#### Friday, 1/24/03:

8:00a – 10:00a	Committee Meetings
8:00a – 12:00n	Highway Products Group Display
10:00a – 12:00n	Executive Board Meeting (if req'd)
12:00n – 1:30p	Kickoff Luncheon
2:00p – 5:30p	Technical Sessions (check TexITE.org for updates)
6:00p – 11:00p	Cattleman's Steakhouse Social Event

#### Saturday, 1/25/03:

7:30a – 8:30a	Consultant Council's Breakfast
8:30a – 12:00n	Technical Program (check TexITE.org for updates)
12:00n – 2:00p	Business Meeting

For more information please contact Monica O'Kane  
Texas Department of Transportation (915)-790-4309 or e-mail  
mokane@dot.state.tx.us or Lourdes Cardenas City of El Paso 915-541-4048  
or E-mail cardenaslx@ci.el-paso.tx.us

# TexITE WINTER 2003 MEETING

EL PASO MARRIOTT

January 23-25, 2003

Registration Form

## Personal Information

Name: \_\_\_\_\_

Name for Badge: \_\_\_\_\_

Street Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Organization: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Spouse Name (If attending): \_\_\_\_\_

## Meeting Registration

TexITE Member (Postmark by 1/2/03)\* \$ 90 X \_\_\_\_\_ = \$ \_\_\_\_\_

TexITE Member (late) or non-member\* \$ 115 X \_\_\_\_\_ = \$ \_\_\_\_\_

Student\* \$ 15 X \_\_\_\_\_ = \$ \_\_\_\_\_

Vendor (name badge only, no meals \$ 15 X \_\_\_\_\_ = \$ \_\_\_\_\_

Social events)

## Additional Meal Tickets (for friends and family)

Friday Kickoff Luncheon \$ 30 X \_\_\_\_\_ = \$ \_\_\_\_\_

Friday Night Social-Cattleman's \$ 37 X \_\_\_\_\_ = \$ \_\_\_\_\_

Saturday Business Luncheon \$ 30 X \_\_\_\_\_ = \$ \_\_\_\_\_

## Golf Tournament (To be held at Painted Dunes Golf Course, 10:00 a, 1/23/02)

Golf Tournament \$ 25 X \_\_\_\_\_ = \$ \_\_\_\_\_

**Technical Tour** City of El Paso Traffic Management Center and TxDOT TransVista Center (please indicate your attendance in the quantity space provided below due to limited number of seats).

Qty \_\_\_\_\_ = No charge

## Payment

TOTAL \_\_\_\_\_ \$

Please make checks payable to TexITE 2002 Winter Meeting

Go to TexITE website for on-line registration (preferred)

Late registration does not guarantee meal availability - register early!

\* All meeting registrations include: Technical Sessions, Kick-Off Luncheon,

Friday Night Social, and Business Luncheon unless otherwise noted.

## Scenes from the Summer Meeting League City, Texas



"Jack Freeman, now International Vice President, relaxing Texas style on the campaign trail."



"Tone Deff"



"Tone Deffer"



"Does this look painful or what?"



"Nazir Lalani (Guest Speaker from California, District 6) presenting at the Pedestrian and Bicycle Design Innovations session"

## Transportation Public Service Award

District 9 of the Institute of Transportation Engineers established an award to recognize individuals outside our profession for their public service contributions. Tony Hartzel, transportation writer for *The Dallas Morning News*, was selected as the first recipient of the award. Tony was honored for his professional journalism that has contributed to a better understanding by the general population of transportation issues.

Mr. Hartzel is a Dallas native and a graduate of Kimball High School and the University of Texas at Arlington. While he was a senior in high school, he worked as a part-time intern at WFAATV Channel 8. He has worked for *The Dallas Morning News* for almost 13 years. He has worked his way up from "obits" and "sports box scores" to the "police beat" where he spent four years. He then spent three years covering suburban city councils before becoming the transportation writer for *The Dallas Morning News*. As transportation writer, he has been able to provide people with information on several fronts: major policies, major research, and last – but not least – major construction projects. All of these affect commuters' lives, and that is foremost in his mind. He also created and writes the weekly "Road Warrior" column in *The Sunday Dallas Morning News*.

His initial career goal was to become a science writer. Covering transportation has allowed him to dive into the science of transportation engineering. He enjoys talking to engineers about research and the science behind the projects, an area that many transportation writers have overlooked. He has been successful in translating the technical work of our profession into stories everyone can understand.

Tony is a winner of the 1994 Texas Associated Press Managing Editors' Short Story Award and a finalist for a 1999 Press Club of Dallas Katie Award. In addition, he is a 2000 Fellow of the University of Maryland's Knight Center for Specialized Journalism.



# 2002 Urban Mobility Study

by Tim Lomax, Texas Transportation Institute

The nation's longest running study of traffic jams this year shows urban congestion growing in three increasingly visible ways.

- The time penalty for making "rush hours" trip is greater.
- The period of time that travelers might encounter traffic congestion is longer.
- The number of streets and freeways that are congested is higher.

Averages in the 75 study areas illustrate the growing severity of the triple threat by America's travelers.

- The time penalty for peak period travelers has jumped from 16 hours per year in 1982 to 62 hours in 2000.
- The period of time when travelers might experience congestion has increased from 4.5 hours in 1982 to 7 hours in 2000.
- The volume of roadways where travel is congested has grown from 32 percent in 1982 to 58 percent in 2000.

Mobility is measured using the roadway congestion index (RCI) and the Travel Rate Index (TRI). The RCI estimates congestion levels in a format that is easy to understand and communicate to the general public. The TRI shows the difference between a trip taken during peak travel times and the same trip made in uncongested conditions. The researchers feel that TRI is a better technical rating system than the simpler RDI.

## TexITE Website Lists Job Postings

For a list of current job postings, please visit the TexITE webpage at [www.texite.org/position.htm](http://www.texite.org/position.htm). For more information on how to post a position online, please contact Marc Jacobson at [marc.jacobson@texite.org](mailto:marc.jacobson@texite.org).

To submit job postings for this newsletter, send information to Brian Shamburger at [brian.shamburger@texite.org](mailto:brian.shamburger@texite.org).

## The top ten and the bottom five cities in 2000

### Roadway Congestion Index (vehicle miles traveled/lane miles)

Metropolitan Area	RCI
1 Los Angeles, CA	1.59
2 San Francisco, CA	1.45
3 District of Columbia	1.35
4 San Jose, CA	1.34
5 San Diego, CA	1.32
6 Atlanta, GA	1.32
7 Chicago, IL	1.31
8 Boston, MA	1.30
9 Miami, FL	1.28
10 Phoenix, AR	1.27
10 Portland, OR	1.27
71 Buffalo, NY	0.76
72 Bakersfield, CA	0.76
73 Corpus Christi, TX	0.70
74 Anchorage, AL	0.62
75 Laredo, TX	0.56

## The top ten and the bottom five cities in 2000 are as follows:

### Travel Rate Index (travel time peak hour vs. off-peak)

Metropolitan Area	TRI
1 Los Angeles, CA	1.52
2 San Francisco, CA	1.36
3 District of Columbia	1.28
4 Chicago, IL	1.28
5 Miami, FL	1.25
6 Phoenix, AR	1.25
7 Seattle, WA	1.24
8 Denver, CO	1.24
9 Ft Lauderdale, FL	1.23
10 San Jose, CA	1.27
10 San Diego, CA	1.27
10 Boston, MA	1.23
10 Las Vegas, NV	1.23
69 Beaumont, TX	1.03
70 Rochester, NY	1.03
71 Albany, NY	1.03
72 Bakersfield, CA	1.03
73 Laredo, TX	1.03
74 Corpus Christi, TX	1.02
75 Anchorage, AL	1.02

The Urban Mobility Report is produced by the Texas Transportation Institute and funded by a consortium of 10 state transportation agency sponsors. The full study is available at <http://mobility.tamu.edu>. You can reach Tim Lomax, Texas Transportation Institute, at (979) 845-9960.

# Transportation Tips

Co-editors: Martin Bretherton & Bridget Smith

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ITE Traffic Engineering Council (TENC)*

## Safety Performance of Rural Two-Lane Highways

FHWA has produced a report that documents the algorithm for predicting the safety performance of rural two-lane highways. The report is titled "Expected Safety Performance of Rural Two-Lane Highways". The algorithm estimates the effect on safety performance of roadway segment parameters including lane width, shoulder width, shoulder type, horizontal curves, grades, driveway density, two-way left turn lanes, passing lanes and roadside design. The algorithm also estimates the intersection parameters including skew angles, traffic control, exclusive left and right turn lanes, sight distance and driveways. The study enables highway agencies to estimate the safety performance of existing or proposed highways and to compare the safety performance of geometric design alternatives.

The report forms the basis for the Crash Prediction Module of the Interactive Highway Safety Design Module (IHSDM). The software is currently under development. Beta testing of the software began in early 2002. The abstract of the report is available at <http://www.tfrc.gov/safety/99207.htm>. Copies of the report are available from Mike Griffith at [mike.griffith@fhwa.dot.gov](mailto:mike.griffith@fhwa.dot.gov). For general information about IHSDM, please call Ray Krammes at [ray.krammes@fhwa.dot.gov](mailto:ray.krammes@fhwa.dot.gov) or (202) 493-3312.

## Traffic Signal Spacing

*by Martin Bretherton*

The Manual of Uniform Traffic Control Devices does not specify how close adjacent signals should be located. Warrant 6 (Coordinated Signal System) provides guidance. The warrant states "The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1000 feet". What do you do if you signals are not in a coordinated signal system?

A study was conducted using the Traffic Engineering list serve to determine what distance local and state traffic engineering departments are using to space signals. Listed below are the results of the study:

- Georgia DOT use 660 feet and 1000 feet for ramps
- Gwinnett County DOT, Georgia uses 1000 feet
- Colorado DOT uses ¼ mile
- Florida DOT uses ¼ mile lowest arterial control and ½ mile for the highest arterial control
- City of Austin, Texas uses 300 feet in the CBD and 1200 feet in general
- Province of British Columbia, Canada uses 1200 feet (400 meters) as a minimum but prefers 2400 feet (800 meters). They use 600 feet (200 meters) in CBD's
- Clark County, Washington uses 800 feet. They use a 20 year projection for left turning queue such that it can not extend into the through movement lanes
- City of Federal Way, Washington uses a ¼ mile but requires a minimum bandwidth or no loss of bandwidth, provided the spacing can accommodate the 95<sup>th</sup> percentile queues in the design year
- City of Denver uses ½ mile. They allow signals within 1/8 of a mile of the ½ mile signals. They use the following formula for signal spacing:

D = Signal spacing

C = Cycle length

S = Progression speed

$D = (C \cdot S) / 2$

On many arterials, the City of Denver recognizes that 8 phases will likely need to be used, if not now, at some time in the future. The shortest cycle length in which the city can adequately squeeze 8 phase is 90 seconds. Most speed on the arterial are between 30 and 40 mph. Using the above equation the ½ mile spacing is "perfect" for a 90 second cycle and 40 mph progression speed up to 120 seconds and 30 mph.

The City recognizes that perfect spacing is not always practical nor is matching the exact speed and cycle length to the signal spacing. The 1/8 mile spacing allow either side of the ½ mile spacing is still close enough to where the platoons approaching from each direction will cross that the city can maintain reasonable progression. In addition the ½ mile signals tend to be the major intersections so it will still control the available band width. A rule of thumb the city shoots for is a third of the cycle for the two way band width.

This study has shown that there is a divergence of opinion on the "correct" signal spacing. Spacing varies on collectors and arterials from 660 feet to 2630 feet (less in CBD's). It would be good if FHWA or NCHRP would do a study on this topic. Until research is completed, use "engineering judgement".

# Section News

## Section Presidents

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## Brazos Valley Section

Brazos Valley TexITE Section has been having monthly meetings this year.

**Melisa Finley**, TTI, gave our chapter an update on the reorganization of TexITE in the February meeting. **Dale Picha**, City of College Station, gave a presentation on Traffic Calming Issues in the City of College Station in the March meeting.

**Bob Appleton**, TxDOT presented TxDOT improvement plans on SH 6 south which has been experiencing significant number of accidents in the past few years in the April meeting. We held our annual meeting on May 30th where the membership voted favorably on having the chapter become a section as well as to elect the next Secretary/Treasurer.

The current Section officers are Bill Lowery, President; Angelia Parham, Vice President; and Michael Parks, Secretary/Treasurer.

## Capital Area Section

**TxDOT Statewide Rural ITS.** Kimley-Horn is under contract with TxDOT to develop ITS Architectures and Deployment Plans for 11 regions across the state. Studies are currently underway in Amarillo, Laredo, Corpus Christi, the Lower Rio Grand Valley, Childress, Tyler, Beaumont, El Paso, and Atlanta. The remaining two regions, Bryan-College Station and Del Rio, will begin in the first quarter of 2003. Managed by **Tom Fowler** of Kimley-Horn's Austin office, the project involves meeting with regional stakeholders to determine their needs and objectives and then developing an ITS architecture and deployment plan that meets those needs.

## Greater Dallas Section

The **City of Frisco** is undergoing rapid change as our population continues to grow at rates of 20% to 30% per year. The Dallas North Tollway and SH 121 interchange construction is a major

project that is underway in our area that is vital to supporting our continued growth. Our citizens recently approved \$198 million dollars in bonds for capital improvement projects to support this growth. Seventy-four million dollars of this bond money is designated for roadway and traffic signal construction over the next five years.

The City of Frisco is working on developing traffic signal controller and cabinet standards. We are also working on preparing school zone/crossing guard guidelines as well as developing a traffic calming program. The City is currently installing a school zone pager system that was purchased this fall and has completed the recent installation of video detection at two locations.

Preparations are underway for the upcoming opening season of the Frisco Roughriders (Texas Rangers AA Baseball) in the April 2003 at the Frisco Sports Complex. This sports complex will also include the new practice facility for the Dallas Stars and an arena for a Junior Hockey league team that should be completed during 2003.

**NCTCOG Thoroughfare Assessment Program.** A team led by Kimley-Horn has been selected by North Central Texas Council of Governments to conduct this project, which will implement new signal timing and other low cost improvements at up to 440 intersections in Dallas, Tarrant, Collin, and Denton Counties. **Wayne Kurfees** of the Dallas office is the Project Manager for the Kimley-Horn team. **Dan Rocha** and **Natalie Bettger** are overseeing the project for NCTCOG. Two 20-intersection pilot projects will begin in January, along with a comprehensive assessment process to select up to 40 other corridors for improvement over the next 30 months. Other team members include Lee Engineering, Gerry de Camp, and DeShazo Tang.



**TxDOT Access Management.** Kimley-Horn has been retained by TxDOT's Design Division to assist with a redraft of the proposed Access Management Manual. **Wayne Kurfees** of the Dallas office is serving as Project Manager, assisted by **Kurt Schulte**. As part of the scope, interactive workshop meetings are being held with groups of transportation professionals and with representatives of the real estate/development industry. The current schedule anticipates release of the revised draft in late spring, with the Kimley-Horn team assisting will additional outreach before the revised manual actually takes effect.

## Greater Fort Worth Section

Meetings are held each 3rd Thursday of the month at Joe T. Garcias north of the Ft Worth CBD off of Main St. Guests are always welcome. Officers are Diana Vazquez (City of Fort Worth), Chris Hoff (Carter & Burgess), and Scott Cooner (TTI).

**Casey Toycen** (TTI) coordinates Adopt-A-Highway program of Greater Fort Worth Chapter. The section is located along Spur 303 between Park Springs Road and Fielder Drive in Arlington.

The Regional Transportation Council, in conjunction with DART and FFWA, hosted a Regional Transit Summit on March 21, where elected officials and community leaders from around the region met to learn about and discuss issues associated with the implementation of transit service both within and outside of the two existing transit service areas. A major theme heard in all areas of the Summit included the need to develop a flexible approach for identifying the appropriate mode, technology and funding needs and constraints that meet the unique needs of each city within the region.

The 5th Annual Joint Meeting with the Dallas Chapter was held on April 15th. ITE Vice-Presidential candidate John

Kennedy spoke on Boston's Central Artery/Tunnel project. Almost 190 people from ITE, ASCE and other organizations attended. A special thanks goes to the sponsors for this event, including Kimley-Horn and Associates, Inc., Carter & Burgess, Naztec, Consolidated Traffic Control Systems, and TC&B as Gold sponsors, and Lee Engineering and Hunter Associates as Silver sponsors.

**Brian Shamburger** (Kimley-Horn and Associates, Inc.) was appointed by the Chapter Executive Board on May 10th to serve as the first section representative through the end of this calendar year. A nomination and election process will precede a new regular three-year term beginning on January 1, 2003.

**Jim Williams** (UTA) led a small committee of **Joe Masterson** (Transystems), **Mitzi Ward** (NCTCOG), **Mark Middleton** (TTI), and **Joe Trammel** (Freese & Nichols) in reviewing current by-laws and developing a new set of by-laws for the anticipated Section.

**Jason Crawford** (TTI) is nearing completion of the Chapter Policy and Procedures Manual. Once completed, the manual will be available from the chapter website.

The Chapter met July 18th at Joe T. Garcia's in Fort Worth where it was officially announced that it had been approved as a section. The new officers and section representatives listed above were officially sworn in. Our guest speaker, Larry Tegtmeier of TxDOT Dallas, presented information on the construction activities, traffic impacts, and contract elements that are being used at the High Five (US 75/IH 635) interchange.

In August, it was announced that a new membership committee had been formed and co-chaired by **Mark Mathis** of the

City of Fort Worth and **Mitzi Ward** of NCTCOG. **Brian Shamburger** and **Chris Hoff** also volunteered to attend review meetings of the draft access management manual with NCTCOG. Our guest speaker was **Dr. Shekar Govind** of UTA who provided an update on the latest research project w/ TxDOT on toll pricing of managed lanes. There were 34 members and affiliates in attendance.

In September, **Dr. Bruce Abernethy** of Bucher, Willis & Ratliff, presented "The Use of ITS in Homeland Security." The membership committee also presented a proposal to offer a free lunch to members who brought in a new member. In addition, Casey Toycen announced a date for the Adopt-a-Highway: October 19th (cancelled due to weather).

In October, Fort Worth District Engineer Maribel Chavez presented an overview of the Unified Transportation Plan, the Trans Texas Corridor, and the development of statewide access management guidelines. There was also a call for volunteers for a section Engineering Outreach Committee and several members volunteered.

In November, Matthew Craig of Halff Associates and Matthew Asaolu of the TxDOT Fort Worth District provided an update on the SH 360 Corridor Improvement Study. In addition, it was announced that Carol Walters of TTI will be serving as chairperson of the Engineering Outreach Committee. The committee will work with the Fort Worth ISD and support National Engineers Week next spring. There were also two nominees for the section representative position for 2002-2003: Brian Shamburger of Kimley Horn (currently the interim section representative) and Joe Trammel of the City of Fort Worth. Ballots for this election plus approval for the section's by-laws will be mailed out in December to be voted on at the December monthly meeting.

NCTCOG recently completed a ridership survey of the Trinity Railway Express commuter rail. The results will be used to apportion the annual operating costs to the non-DART/FWTA cities based on the origin and destination of the rail passengers.

## Greater Houston Section

TTI (Houston Office) is assisting TxDOT in implementing and evaluating a Railroad Grade Crossing Monitoring System in Sugar Land as part of the ITS Priority Corridor Program for the Houston Area. The system is based on research and development previously undertaken by TTI's Translink Laboratory in College Station. Nine grade crossings are being monitored for train activity in the six mile long corridor through Sugar Land. The system measures train direction, speed and length; and projects the train's arrival time and time of blockage at downstream grade crossings. The Sugar Land Fire Department and Police Department are the system users, with monitoring occurring in two fire stations and at the police and fire dispatch center. These emergency services will use the system to save response time by altering routes as they make their emergency runs. TTI is evaluating usage and effectiveness of the system.

## Other Areas

TxDOT will begin construction in June 2002 on a \$20 million project to widen 4.2 miles of US 83 (Winters Freeway) in Abilene from four lanes to six lanes. The project will take about three years to complete. The project includes replacing the existing pavement with concrete pavement and conversion of the ramps from a diamond pattern to an "X" pattern.

**Amarillo ATMS Design.** Following the recent completion of a feasibility study, Kimley-Horn has been retained by TxDOT's Amarillo District to design a

new distributed signal system that will control 72 intersections in the central business district. Spread spectrum radio will be used as the communications medium. The scope also includes signal hardware upgrades and extensive sidewalk and ramp work to achieve ADA compliance. **Brian Shewski** of Kimley-Horn's Dallas office is the Project Manager.

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*Message from the President continued pg 1*

been implemented without our very devoted and clever Webmaster, Marc Jacobson. We now provide many services on-line (i.e. membership applications, frequent roster updates, surveys, and meeting registrations). Through the use of e-mail and our website, we are able to notify and solicit comments from our members on critical issues related to policies, legislation and national standards changes (i.e. ADA requirements, Texas MUTCD).

**Electronic Membership Rosters** - As of November 2002, we have 801 International ITE members and 137 Section-only members in the Texas District. Keeping up with the latest contact information on members is a very time consuming job and we must all thank Susan Langdon for the many hours she has spent updating our computerized membership database and creating a PDF file that can be viewed on-line or downloaded for printing. Remember, it was only a year ago that we were limited to printing and mailing a hard copy roster once every 18 months.

**Increased Student Chapter Support** - In April, the District Board approved a student chapter travel budget to support student travel to our district meetings twice a year. Jim Carvell has done a wonderful job of coordinating student functions and assuring that TexITE is assisting our Texas engineering students.

### Financial Status

In November, the District Board approved a 2003 budget that shows our annual operating expenses exceeding our

annual income. As of November 10th, the combined total of checking, savings and annual meeting bank accounts was a little over \$60,000. The board has decided to use these funds to supplement the operating budget shortfall over the next five years rather than increase our annual dues. Visit the [texite.org](http://texite.org) website to view the 2002 and 2003 budget spreadsheets. The board will be seeking the assistance of a tax attorney to review the financial operation of our organization and determine if we are eligible to become tax-exempt. Although we are considered a non-profit organization and pay no state taxes, we are still required to pay local sales tax. Our organization currently pays over \$3,000 in sales tax per year. The board has also reviewed the deposits and withdrawals of our bank accounts and they are working to transfer funds to various accounts to maximize interest earnings. Many thanks to Secretary, John Friebele and District Administrator, Jim Williams for putting together a financial plan to cover services and keep our dues at \$20.

### The Rewards of Community Service

Finally, I can't say enough how rewarding it has been to volunteer my time to the Texas engineering community. For many of us, the ability to contribute the time, or the money, can take the form of a roller coaster ride. Yet, many of you are volunteering your time to serve on national committees or taking on very demanding leadership roles. For those of you that are between projects and can spare a little time, I encourage you to volunteer for a leadership position or serve on a technical committee. For those of you that will always lack the time, you might consider increasing your contribution monetarily by upgrading your membership level to Member or Fellow. Your contribution, in whatever form it takes, ultimately benefits you by supporting an organization that promotes the image and critical needs of engineers. Thank you again for allowing me to serve as your President.

Most heat sensitive electronics have some sort of cooling fan for temperature control. (Ever try to run a personal computer at home once the fan goes out? What happens? IT FRIES!)

LED signal displays have no way to cool themselves, so it is important that the circuitry be designed to operate at up to 165 degrees Fahrenheit, at elevated voltages, and with possible "unclean" power sources.

TxDOT uses a number of tests to determine if equipment will meet our needs and hold up well in the field. Some tests have migrated over from industry standard traffic signal controller tests. Others have been developed on an "as needed" basis. Independent labs and in-house tests on electronic equipment are used.

TxDOT utilizes two state of the art environmental testing chambers to put electronic devices "through the ringer" before they are approved for state use.

Since LEDs will be operating in the same environment as a signal controller unit, they are subjected to the NEMA tests for TS-1 controllers.

The first test LEDs must pass is an environmental test, where they are:

- "Cooked" at 165 Degrees and 135 Volts for a minimum of 15 Hours,
- Injected with negative half sine waves,
- Have induced programmed power outages, and
- Subjected to simulated "brown out" conditions.

If the LED units fail any step of the environmental test, the entire product line is rejected and sent "back to the drawing board".

All units are tested in the chambers on both TS-1 controllers and a flasher jig. They are then tested again on a TS-2 unit outside the chambers for compatibility.

It is critical to test LEDs for compatibility because of limitations of current load switch design. In the NEMA

specification for TS-2 controllers, load switches are only required to sense 100 mA or greater. (This equates to a 12 Watt load.) Most non-LED signals use a 135 to 150 Watt bulb in each head, so this isn't a problem. However, LEDs draw between 11 and 15 Watts. With the lower wattages, your conflict monitoring equipment might see a problem, making the signal go into flash.

If the LEDs pass both the environmental chamber and equipment compatibility tests, they heads are disassembled to test internal circuitry and drive currents. (TxDOT does not allow individual drive currents to operate at higher levels than recommended by the component manufacturer.)

A "fail state" test is also performed, where individual LED bulbs are clipped until the unit fails. If greater than 40% of the LEDs are out and the unit continues to work, it is rejected.

But that's not the end of the testing! Random sampling is done to ensure that the products being supplied are the same as those approved through testing. In

addition, if a product shows problems in the field, we pull that product from the list until the manufacturer can document what is causing the problem, how they plan to fix it, and submit upgraded units for re-testing.

Once an LED brand is passed, it is included on TxDOT's qualified products list (QPL) at the following website:

<http://www.dot.state.tx.us/insdtdot/orgchart/gsd/purchasing/supps.htm>

These lists are used to ensure that only qualified products are being installed on TxDOT projects. The QPL is updated regularly and is available for use by everyone. If your agency is looking to upgrade to LEDs or any other new signal technology, this site will help to ensure that products used on your projects are of the highest quality possible. upgrade to LEDs or any other new signal technology, this site will help to ensure that products used on your projects are of the highest quality possible.

## Upcoming Meetings

**2003 TexITE  
Winter Meeting**  
January 23-25, 2003  
El Paso, Texas

**2003 TexITE  
Summer Meeting**  
June 12-14, 2003  
Richardson, Texas

**2004 TexITE  
Winter Meeting**  
San Antonio, TX

**2004 TexITE  
Summer Meeting**  
TexITE 50th Anniversary Meeting  
Austin, Texas

# People News

## Greater Houston Section

After almost three years as a Project Manager with Klotz Associates, Inc., **Tony Voigt** has rejoined the Texas Transportation Institute (TTI) as an Associate Research Engineer. Tony will be working on various planning and operations research projects, initially focusing on truck turnover problems on freeway-to-freeway connector ramps.

## Greater Dallas Section

**Ronnie Bell**, Senior Traffic Engineer with the City of Plano has been appointed vice-chair of the Signals Technical Committee of the National Committee on Uniform Traffic Control Devices. The National Committee recommends MUTCD modifications to the FHWA. This committee played a significant role in the preparation of the 2000 MUTCD. Ronnie was also appointed as a member of the ITE Delegation to the National Committee. This delegation consists of eight members and eight associate members. Ronnie has been a member of the Signals Technical Committee since 1988 and served as an associate member of the ITE Delegation since 1992.

**Darin Bjork** joined Kimley-Horn's Dallas office in June 2002 following his graduation from Vanderbilt University. Darin spent much of the summer and fall doing on-site design for a major communications infrastructure project at Sky Harbor Airport in Phoenix.

**Patrick O'Conner** will rejoin Kimley-Horn's Dallas office in January following his graduation from Purdue University. Patrick, who interned with KHA for the last three summers, will work on a variety of traffic operations and transportation planning projects.

**Amy Lewis** has transferred to Kimley-Horn's Austin office from Hampton Roads (VA), where she worked on a variety of traffic operations, ITS, and transportation planning projects. In Austin, her initial focus will be the TxDOT Statewide Rural ITS project.

## Greater Fort Worth Section

**John Overman** (TTI) was selected as a National Transit Institute Fellow. Fellows are selected through a national nomination process for a combination of insight and recent, first-hand experience in implementing advanced technologies and new ideas in North American Transit. Fellows serve for a two year term.

**Cinde Weatherby Gilliland** joined URS Corporation as a Senior Project Manager for Transit and Transportation Planning. She will be based in the company's Dallas office. Ms. Gilliland was formerly the Manager of the Institutional Policy Program of the Texas Transportation Institute (TTI) and served as the Texas A&M University Associate Director for the Southwest University Transportation Center.

**Tom Diamond, P.E.**, has joined the Fort Worth office of HNTB Corporation as the Group Manager of the Transportation Department. Tom has over 21 years of experience in planning, designing, and managing complex transportation projects for TxDOT and municipal clients. His project portfolio includes: freeways, interchanges, rural highways, urban arterial streets, transit, and freight rail. Mr. Diamond will be focusing on expanding our transportation services from our Fort Worth office.

The University of Texas at Arlington (UTA) recently hired **Dr. Steve Mattingly** in the transportation planning and modeling area. Steve received his BS at Rice, his MS at UTA, and his Ph.D. at the University of California at Irvine. He spent the last three years teaching at the University of Alaska at Fairbanks. He is a member of ITE, and has been attending the Fort Worth and Dallas Section meetings.

**Dr. Jim Williams** (UTA) recently received the Professional Service to Students Award from the Texas Section of ASCE last spring.

## Local Section Affiliates

**Robert Allen**, Director of Abilene MPO, is serving on the Statewide Corridor Guidelines Work Group as part of the TxDOT process to restructure the Unified Transportation Program.

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## Younger Members Committee

Scott Cothron, Chris Pierce, David Halloin, John Denholm, Aaron Nathan, and Kelly Parma are assisting Jason Crawford in collecting the biography and a photo for each of the 47 TexITE Past Presidents. If you have information to share about a Past President, especially our early Presidents, please contact Jason Crawford at [jcrawford@tamu.edu](mailto:jcrawford@tamu.edu) or 817-462-0534.

The Speakers Bureau is collecting information again. If you are interested in placing your name on a list of speakers with topics you indicate, we will share this with the local chapters and student chapters. Send your name and topic(s) to Jason Crawford at [jcrawford@tamu.edu](mailto:jcrawford@tamu.edu) or fax 817-462-0534.

The committee has placed several engineering license links on its committee web page through [www.textite.org](http://www.textite.org). This is a good place to start if you want to find information on the Internet.

## Texas A&M University

The main focus of the Texas A&M University ITE Student Chapter during the Spring semester was the technical meetings aimed at raising the level of interest and awareness of the transportation profession among Chapter members. The technical meetings generally occurred over lunch, and included a presentation by a practicing transportation professional. Not only did the meetings serve an educational component, they also allowed interested students to network with professionals for career opportunities. Various meetings were held during the Spring semester, including "benefits of ITE" by **Grant Schultz** (President, Texas A&M ITE University Student Chapter), "Innovative Traffic Control in Europe and Korea" by **Steve Hofener**, (President, Traffic Engineering Consultants Inc., Oklahoma City), "Life After Education" by **Marsha Anderson Bomar** (President, Street Smarts, Duluth, GA), "Color Basics in Transportation" by **Justin "Jay" Rennilson** (President, Rennilson Consultants), "Public Involvement for the Project to Widen FM 60 Through Snook" by **Bob Appleton** and **Chad Bohne** (TxDOT), "Investing for Retirement...What Has Changed?" by **Steven Wohlschlaeger** (Merrill-Lynch), "Private vs. Public Sector for your First Job." by **Brian Bochner**, and **Bill Stockton**, (TTI), and "transportation profession and the importance of politics, communication, and technical expertise" by **Dr. T. Peter Ruane**, (President and CEO, American Road & Transportation Builders Association (ARTBA)).

Along with the meetings, the Student Chapter also sponsored trips to transportation related conferences. Attendance at these conferences provides members with yet another opportunity to become more informed with current transportation issues and to interact with professionals on a formal and informal basis.

The first of these meetings occurred in early January when fifteen members of the Student Chapter attended the 2002



Transportation Research Board 81<sup>st</sup> Annual Meeting in Washington, D.C. In addition to attending the conference, several students also toured the Washington Metro Transit facility, the Virginia Department of Transportation Advanced Traffic Management System facility, and attended the ITE student social event, where they met with ITE International President, **Jenny Grote** and ITE International Past-President, **Steven Gayle**. Ten of those in attendance at the meeting also attended the ITE Madsen luncheon, seven members made presentations in the general sessions, while our current ITE Student Chapter President **Grant Schultz**, along with our two most recent Past-Presidents, **Jacqueline Jenkins** and **Steve Schrock** were invited to attend the Council of University Transportation Centers (CUTC) dinner.

Later in January, **Grant Schultz**, **Charles Stevens** and **Sean Merrell** traveled to Irving, Texas for the Winter TexITE meeting. Here students attended presentations on a variety of transportation planning and traffic engineering issues. **Sean Merrell** presented his M.E. project for the student paper presentation entitled "Guidelines for a Unified Management Plan for Major Incidents."

This year the Chapter has continued their community service in the TxDOT Adopt-





a-Highway program. The Chapter is responsible for trash pick-up along a section of State Highway 21 in Brazos County four times each calendar year. The Chapter did its first pick-up of the semester on February 2, 2002, with a second pick-up on April 13, 2002.

The ITE Student Chapter of Texas A&M University is a dynamic organization that provides the students with an opportunity to obtain exposure to the professional world. Formal and informal contact amongst the members and with other professionals is the key to the success of our Chapter. It has been a very active and fulfilling semester for the Chapter and its members and we look forward to the challenges and opportunities of the future. If you are interested in speaking to the Chapter, or sponsoring an activity, please contact our ITE Chapter President Grant Schultz at [grant-schultz@tamu.edu](mailto:grant-schultz@tamu.edu) to arrange a time to visit.

## University of Texas at Austin

The ITE chapter at the University of Texas at Austin seeks to enrich the transportation academic experience of members by sponsoring technical presentations, field trips and social events. The chapter also promotes technical presentations organized by the Advanced Institute for Transportation Infrastructure Management. The current officers for the student chapter for this year are Gozen Basar (President), Ricardo Giesen (Vice-President), Anna Okola (Secretary), and Amulya Kottapali (Treasurer). There are 54 members of ITE Chapter at the University of Texas at Austin.

During the course of the year, the chapter invited guest speakers to talk with the students about a variety of issues in the profession today. The following were the featured speakers for ITE this past year, "Transportation and Air Quality" by Mr. Bill Knowles (Texas Department of Transportation), "Transportation Air Planning in the Post 9-11 Environment" by Mr. Bill Dunlay (Leigh Fisher

Associates Inc), "Increasing Traffic Capacity at 24th and Lamar Intersection" by Ms. Jillyn O'Shea, "Planning aspects for non-motorized modes: How Austin plans for bicylists and pedestrians" by Ms. Linda Dupriest (Austin's Bicycle and Pedestrian Program), "State of the Art in Transportation Demand Modelling" by Dr. Frank Koppelman, "Issues in a New Statistical Agency" by Dr. Aashish Sen, and, "Transport Modeling in Developing Countries" by Dr. Dhingra.

The chapter sent delegations to both the Summer (in Midland) and Winter (in Irving) TexITE conferences. The conference provides an excellent opportunity for students to interact with transportation professionals, faculty members, and ITE student members from all parts of Texas. The TexITE membership's interest in students is deeply appreciated. This interest was evident from the discounted registration fee and members' unsolicited offers of career advice. The following were presentations from our students: "Inland Ports: Implications for Texas" by Iris Lin and Jordan Ludders in summer 2001, and, "Work Zone Traffic Control in the US 75/IH 635 Interchange Reconstruction" by Eric Bollich in Winter 2002.

The chapter strives to promote a sense of unity among the students. To make the transition of the new students to UT easy,



an elaborate and detailed orientation session is organized for the incoming graduate students. A Welcome session was also organized by our chapter to welcome the new graduate students into the program. This session introduces the students to the faculty and the facilities and helps the new students with the administrative matters. ITE in conjunction with the university chapter of ITS, also hosts a birthday party for the transportation students every month.

ITE also coordinates regular "happy-hour" outings and various activities. Recently ITE has organized recreational activities such as, bowling, theater dinners, skating nights on the town. ITE provides a balance between professional/academic events and social/recreational activities to enhance the overall quality of a graduate student's life and make the Austin experience a memorable one. Continuing with the efforts from previous years, the picture board was updated to include new students. The board, which is located prominently near the elevator lobby that serves transportation faculty and student offices, includes a picture and a short vita of the students along with a world map showing the students' hometowns. Faculty and visitors to UT have praised the board as a creative way to introduce the new students.

The chapter also takes an active role in disseminating information about job openings through E-mails to transportation students and is currently updating the website which serves as our window to the world. The site may be accessed at:  
<http://www.ce.utexas.edu/org/ite/index.htm>.

## Future Engineers Committee

At the TexITE meeting in January, the President called for volunteers to form a committee to promote engineering as a career choice. More specifically, the purpose of the TexITE Future Engineers Committee is to encourage K-12 students to seek higher education in the engineering and science fields, with emphasis on transportation engineering through field demonstrations, coordination with other engineering and science societies, and personal interaction with TexITE and its members. Some of the mechanisms that have been discussed include: 1) the development of a contact list for presentations, tours, etc., 2) the development of a list of potential activities, and 3) the development of a collection of promotional materials. If you have any ideas that may help this committee in their efforts, please contact Melisa Finley at [m-finley@tamu.edu](mailto:m-finley@tamu.edu).

# TextTE Volunteer Letter

by Cissy Sylo

I had the unique opportunity to participate in a shadowing program with a high school geometry teacher recently. The Carrollton-Farmers Branch Independent School District paired high school teachers with industry partners this spring. Ms. Jeanette Bennett, a 25 year veteran geometry teacher, at Newman Smith High School and I were luckily enough to be matched. Ms. Bennett spent a day with me during spring break shadowing me on a typical day. Then, I spent a day with 300 geometry students demonstrating how I use geometry daily. Ms. Bennett performed field measurements, calculating soil volumes and areas for construction projects, measured sight angles, calculating grades, and much more during our day together. She loved this opportunity to see how engineers really use geometry in their daily jobs since all high school students are now required by pass geometry before graduating.



It was a wonderful experience presenting to such a diverse group of high school students. The students ranged from special education to advanced placement in their abilities. I had the students perform two actual geometry problems - one for sight distance angles, and one for a volume needed to construct "Mount Marvin" here at DFW. The problems were real issues I was dealing with the day Ms. Bennett visited DFW Airport. The students learned how to apply their

math skills, conversion factors and most importantly learned to apply common sense to their math problems. "Mount Marvin", the soil volume problem was designed to be 1,080 tall with a 100-foot base. The students quickly realized that although they had done conversions and calculated the correct answer from the formula, "Mount Marvin" would have collapsed if constructed with this limited base.

It was a great experience for the students, teachers, the CFBISD school district administration, and me. I had several teachers and administrators that participated tell me afterwards that the students don't understand to use common sense in applying their math problems. They really appreciated the opportunity to have new real world problems to share with their students that were not in a book. I still remember Drs. Williams, Ardekani, and Parker doing similar problems while attending UTA. Some of those examples were so vivid; I still remember one particularly, almost 20 years later.

Since I have done similar type youth activities before, I knew to bring a "motivator" for these 90 minute classes....Candy! I tossed Jolly Ranchers, Chocolates, and other assorted candies for participating in question/answers. All answers provided by the students earned a piece of candy whether or not it was correct. The students from the first session quickly spread the word to other students in hallways, and soon the kids were sitting on the front rows since they had the best opportunity to ask questions with their hands raised. The kids especially loved that I hit the most hated math teacher in the head with a Jolly Rancher (on accident) - it showed them you better know how to calculate and then implement a "slope" when throwing something!

I would encourage everyone to take advantage of these type programs. Most school districts and universities offer some type of program. I have volunteered for years at UTA teaching one lesson of Jim Williams' classes. I have also participated in a youth program for 7th & 8th grade girls interested in math/science careers that were a ton of fun for all. I have also judged the Future Cities Competition here at UTA for the past two years for junior high students. On a personal basis, I teach youth religious education each year and spent 3 years as an advisor/chairman of the Chamber of Commerce's Youth Leadership Program. Each time I have participated in these programs, I have gotten more back far more than I have given.



Each of us upon receiving our "Professional Engineer" license is charged with the responsibility to enhance our profession as stated from the Texas Engineering Practice Act shown below. It takes each of us giving to others to make a difference in others' lives, both professionally and personally. I challenge each of you to consider volunteering for one event or speech to make that difference. I did.

*§131.155. Engineers' Responsibility to the Profession.*

(a) *Engineers shall engage in professional and business activities in an honest and ethical manner. Engineers should strive to promote responsibility, commitment, and ethics both in the education and practice phases of engineering. They should attempt to enhance society's awareness of engineers' responsibilities to the public and encourage the communication of these principles of ethical conduct among engineers.*

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