## Official Publication of District 9 Institute of Transportation Engineers

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## Triple Left-Turn Lane System—US 59 at SH 6

David Worley, City of Sugar Land and Isaac Joskowicz, Brown & Gay Engineers, Inc.

A triple left-turn lane system was constructed at the interchange of US Highway 59 (US 59) at State Highway 6 (SH 6) in the City of Sugar Land, Texas in November 2009. The system consists of an overhead dynamic message sign and in-pavement lights on the US 59 southbound frontage road approach to the interchange. The dynamic message sign displays two left-turn arrows and a shared left-through arrow alternating with "STAY IN YOUR LANE" message at approximately 800 feet from the intersection. The in-pavement lights delineate the three left-turn lanes through the intersection with two sets of lights following the pavement markings. This project was needed due to the high traffic demand of the south-to-east movement from Houston to Sugar Land and Missouri City. This diamond interchange has six and seven-lane approaches on the US 59 frontage roads and five-lane approaches on SH 6.

#### Introduction

This paper describes the study phase, design phase, construction phase, and evaluation phase of the triple left-turn lane system implemented at the US 59 at SH 6 interchange in Sugar Land, Texas, in November 2009. The system consists of an overhead dynamic message sign and in-pavement lights on the US 59 southbound frontage road approach to the interchange. This interchange



Figure 1—Project Location

serves the City of Sugar Land's Town Center mixed-use district, and provides access to Missouri City via SH 6 South. This project is the first part of a series of improvements planned for this interchange as an alternative to a three-level grade separation project, which was cancelled due to its access impacts to the surrounding land use. Figure 1 shows the project location map.

#### **Study Phase**

During the study phase, the City of Sugar Land conducted capacity analyses for the existing condition and developed several alternatives for the short-term (5 years), intermediate term (5-10 years), and long-term (10-20 years) time frames. The existing interchange carries approximately 8,000 vehicles per hour (vph) during the weekday afternoon peak hour and 10,000 vph during the Saturday noon peak hour. The heaviest movement is the south-to-east movement, which carries 1,300 vph during the weekday evening peak hour, and 1,800 vph during the Saturday

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Save the Date

2010 TexITE Summer Meeting

Sugar Land, TX

June 17-19, 2010

## Triple Left-Turn Lane System—US 59 at SH 6

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noon peak hour. The queue on this approach extended into the main lanes of US 59, which is approximately 3,800 feet from the interchange.

Two alternatives were developed for the short-term improvements. The first alternative consisted of minor paving and signing improvements: adding right-turn signals, extending storage bays, adding directional signs to US 59, closing the median into Town Center, and straightening approach lanes. The second alternative was to implement the triple left-turn lane system with guide assignment signs and in-pavement lights, as shown in Figure 2. For the intermediate time frame, the widening of SH 6 from six to eight lanes on both sides of the interchange was evaluated. The limits of the widening were from First Colony Blvd. to Lexington Blvd, a distance of 6,000 feet. Finally, for the long-term time frame, four alternatives were considered: single point urban interchange, diverging diamond, continuous flow interchange, and three-level diamond.

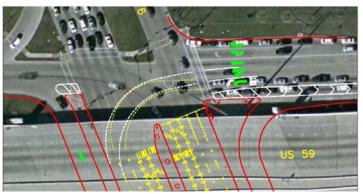


Figure 2—Triple Left Pavement Markings

The first two alternatives considered for the short term (minor paving and signing improvements, and the triple left-turn lane system) and the intermediate-term alternative (eight-lane widening) were chosen for implementation in three steps as follows: 1. Triple left-turn lane system, 2. Minor paving and signing improvements, and 3. Widening of SH 6 to eight lanes.

The design phase of the triple left-turn lane system consisted of developing the design criteria report and the plans, specifications, and estimates for the construction of the system. The design criteria report addressed the optimum spacing of the inpavement lights (IPL) and the details of the overhead sign.

The spacing used for the IPLs was 12 feet on the straight sections and 6 feet on the curved sections of the turn lanes. This was determined using computer renderings and animation from a driver's point of view, as shown in Figure 3. The IPLs display a solid white light when the green signal is on for this interchange approach.



Figure 3—Computer Animation

The overhead sign analysis consisted of evaluating a static versus a dynamic sign, as well as a cantilever versus a bridge support. A dynamic message sign (DMS) supported by a truss cantilever structure was selected. The DMS was designed as a 16-ft by 6-ft full-matrix sign. The truss cantilever structure was designed as a cast-in-place concrete column bearing the Imperial Sugar crown and Lone Star symbols to match the US 59 design in this area. The DMS was designed to display two left-turn arrows and one shared left-and-through arrow. The DMS can also be used to display traveler information messages.

#### **Construction Phase**

The construction phase took approximately three months to complete. The goal was to complete the project before the increase in shopping traffic in the area during the Thanksgiving holidays. One of challenges during this phase was working around the heavy traffic periods. Most of the work was accomplished after 7:00 PM, when the traffic slowed down. Another challenge during construction was fitting the overhead cantilever sign truss to the cast-in-place column bolts. Also, the downstream signal timings on SH 6 had to be adjusted to handle the

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## President's Message

Gilmer D. Gaston, P.E., PTOE



It has taken me awhile to get around to finalizing a message to the membership. I want to announce to all that we have several new committees

hard at work for you. The Program Committee under the leadership of Brian Shamburger has been working to pull together what promises to be one of the best technical programs in TexITE history at Sugar Land. The Newsletter Committee, as illustrated by your ability to read this message, has gathered information from across the State via our Newsletter Section Representatives, similar to the Area Coordinators who worked on the newsletter prior to the creation of our Sections. The Transit Committee has been re-started and will hold a committee meeting in Sugar Land. Our other committees are hard at work advancing the organization in one way or another. If you are not currently active in one of our District committee's I encourage you to get involved. The time and effort that you put into your organization is an investment in our future.

Elections are coming up for the next Secretary-Treasurer and Vice-President/
President Elect and if they have not already started they will begin soon, so watch your inbox for your notification and once received, go to the website to review candidate information and cast your vote for the person you want to select as your next Secretary-Treasurer. Those in the at-large area will also be selecting your representative on the Board. All of those elected will take office in January 2011.

The 2010 District Summer Meeting in Sugar Land is next month, June 17-19, 2010. Visit our website at www.texite.org for more information. On-line registration should be open by the time you read this message. I think you will be pleased to see the Technical Program and the training opportunities being offered. There will be an ADA Training class on Thursday. On Friday morning there will be a FHWA Workshop on Alternative Intersections and Interchanges put on by FHWA's Joe Bared. This training workshop is being offered in a new meeting format, so pay close attention during the registration process. The Meeting Schedule for Sugar Land has changed slightly from the norm, so consider the schedule when making your travel plans.

I want to report that our organization is vibrant and growing. We have almost 1,000 Texas District members, including our students, who make up approximately one quarter of our membership. I commit to you that the District Board will continue to work for you to enhance our organization and our meetings to provide opportunities for you to advance your career in our industry. I, like many of you, find it difficult, and sometimes seemingly impossible, to be away from the office for the relatively small amount of time required to attend our District Meetings. However, I can also say that I have never a TexITE Meeting without attended learning something or picking up at least one idea or solution that I have applied to an existing or pending problem. So, while we are often looking at a mountain of reasons why we cannot attend, it is always well worth the costs in \$'s and time. Therefore, I encourage you to plan to attend the upcoming District Meeting in Sugar Land, a meeting that I believe will go down in the TexITE history books as one of our most successful ever. I look forward to seeing you there.

## **Newest Honorary ITE Member**

The highest recognition of notable and outstanding professional achievement presented by ITE is election to honorary membership. Since 1933, when the first honorary member was selected, only 76 individuals have been so honored. On Saturday, March 13, the ITE Board of Directors elected a 77th person to honorary membership: **Dr. Dennis** 

Christiansen, Director of the Texas Transportation Institute. Dr. Christiansen was so honored for his tremendous impact on transportation in the U.S. and across the globe and his commitment and support to ITE throughout his career. Please join me in congratulating Dennis on this well-deserved honor.





## Triple Left-Turn Lane System—US 59 at SH 6

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additional traffic volume generated by the triple left. The project was successfully completed one week before the thanksgiving holidays. The completed DMS in operation is shown in Figure 4. The queue on this approach has been significantly reduced. It does not reach the US 59 main lanes as it did before. Furthermore, the traffic signal is working beyond the City's ex-



Figure 4—DMS in Operation

pectations. The cycle length was reduced from 180 seconds to 120 seconds during both, the morning and afternoon peak hours. This provides for a more efficient operation at the interchange.

#### **Evaluation Phase**

The Texas Transportation Institute (TTI) will conduct an evaluation of the effectiveness of the IPLs during the spring of 2010. TTI requested approval from FHWA for the experimental use of the IPLs for this specific application, a triple left-turn lane, at the beginning of the project.

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## **FHWA Informational Workshop**

In Conjunction with Summer TexITE Meeting in Sugar Land Texas, June 17-19, 2010

TexITE is pleased to announce that we will be hosting an FHWA Informational Workshop on Alternative Intersections/ Interchanges in conjunction with the upcoming Summer TexITE Meeting in Sugar Land Texas, June 17-19, 2010.

The FHWA Alternative Intersections/Interchanges Workshop will provide an overview of the innovative intersection design and operation concepts that are being included in the upcoming Alternative Intersections/Interchanges: Informational Report (AIIR). The presenter will be Dr. Joe Bared of Federal Highway Administration. The presentation will include video of alternative intersections across the U.S. Instead of traveling to these various sites to see the concepts, you can travel a relatively short distance to Sugar Land for a summary of the latest innovative treatments. Items to be discussed include geometric design features, operational and safety issues, access management issues, and construction sequencing. The innovative treatments to be discussed include Median U-Turn Intersections,

Restricted Crossing U-Turn Intersections, Displaced Left Turn Intersections, and the Quadrant Roadway Intersection. Innovative interchange treatments will include the Double Crossover Diamond (Diverging Diamond) and Displaced Left Turn Interchange. If you are keeping up with innovations in transportation you may already know that many of these treatments are being deployed across the nation, some are even being deployed here in Texas.

The workshop will be held Friday morning, June 18 at the Tex-ITE Summer Meeting in Sugar Land, Texas. We encourage you to register for the workshop via the TexITE on-line website. On-line registration will open in early May at <a href="https://www.texite.org">www.texite.org</a>. On-site registration and check-in will begin at 7:30 AM on Friday morning and the workshop will wrap up before the Kick-Off Luncheon, so be sure your travel plans include being in Sugar Land early on Friday morning.



## **International Director's Message**

Gary Thomas, P.E., PhD



Next month marks the half-way point of my term as your international director. My predecessor, Robert Wunderlich, and his predecessor, Jim Carvell, both told me that my

three years representing the Texas District would go by fast. It seems to me that their analysis was spot on (as if I had any doubt). So here is a quick update on things that are happening.

#### ITE is on the Move

It has been nearly ten years since ITE moved its headquarters to their current location. And in 2010, we will again be relocating. First and foremost, I want to assure you that this move is being done to save money in the long run. With our lease soon to expire, the current location was not meeting the needs of the Institute and the building owner was not very motivated to keep us (a non-government organization) as a tenant. So last year, ITE staff began the process of looking for a new building. The new location is more convenient for visitors to get to (located about one block from two different Metro stations). The new lease will save the Institute a considerable amount in rent over the terms of the lease. And we are expecting the new location to handle new communication technologies better than the current location. Design is moving along toward having the necessary permits to begin to build out the space starting in May.

#### 80th Anniversary Fund

ITE's leadership is asking you to not only help us move to this new location, but to also recognize the 80th anniversary of the Institute, which takes place in 2010. ITE is seeking your contributions toward making the new reception area and conference room functional and attractive spaces that reflect favorably on the Institute and its past, present and future. Our goal is to raise \$200,000. If you or your firm is interested in donating, please let me know and I will get you in touch with the right people. You can learn more on the ITE Web site. Personally, I have pledged at the Patron level.

#### **Congratulations to New Officers**

I extend my congratulations to all of the newly elected 2010 officers in the sections: Troy Rother and Kevin Balke (Brazos Valley), Anna Martin and James Kratz (Capital Area), John Denholm (Dallas), David Jodray (Fort Worth), Dustin Qualls (Houston), and Mike Garza (South Texas). I know you'll find your time as an officer extremely rewarding.

#### **ITE Student Traffic Bowl**

As you probably know, TexITE held the first district traffic bowl competition at the Winter Meeting in Frisco. A big "congratulations" to the student chapter at Texas A&M University on their victory. It was a great match up and I thank the student chapters at the University of Texas at Austin and the University of Texas at Arlington for their participation. Texas A&M will be sending their team to the ITE Annual Meeting in Vancouver to compete in the final challenge against the winners of other district competitions for all-out bragging rights. As of the writing of this article, five other schools

have qualified: Purdue University, the University of Delaware, University of Georgia, and the University of Massachusetts at Amherst. Thanks to **Robert Saylor** for serving on the committee that has been charged with bringing this terrific program together. And if you are going to be at the Annual Meeting this summer, be sure to bring along your Aggie maroon to support our students.

#### San Antonio Meeting

While attendance at the San Antonio meeting suffered because of our economic situation, a strong presence from our Texas members played a HUGE part in keeping the meeting in the black. We cannot thank you enough for your support of last year's annual meeting.

As always, please let me know if you have any questions or concerns. And mark your calendars for the Summer Meeting in Sugar Land on June 17-19. See you then!

## **Voting Booth Open**

If you are a TexITE member, you can cast your ballot until midnight June 15, 2010. You will have the opportunity to vote for the following positions:

- Vice President/President-Elect
  - Dave Carter
- Secretary-Treasurer
  - Melisa Finley
  - Ramesh Gunda
- Proposed By-Law Change

If you are a TexITE member that does not reside within one of the six TexITE Sections, you are eligible to vote for your section representative for 2011-2012:

- Jeryl Hart
- Lourdes Cardenas



## Median Left-Turn (MLT) Intersection Design

Lloyd Neal, P.E., PTOE, City of Plano

Signalized intersections with heavy left-turn movements pose particular problems at conventional intersections. Cars and trucks take up space and there is only so much signal time and pavement available for traffic to use. Often, when right-of-way is available, the favored engineering solution is to separate the conflicting traffic by constructing an overpass. But when that is not an option, then maximizing traffic safety and efficiency should be the primary goal.

One nemesis of efficiency at signalized intersections is "lost time." Lost time, that portion of the total signal cycle that does

not significantly contribute toward moving traffic, consists of the time that drivers use to react and start moving after the light turns green. There is also lost time when a line of cars moving though the intersection starts spreading out leaving more than the optimum amount of time between vehicles. Lost time is multiplied by every lane at an intersection. So an intersection with three approach lanes experiences more lost

time than an intersection with two approach lanes. At intersections with heavy traffic volume, the cumulative effect of lost time is many hours of traffic delay and excessive stops by motorists with associated reductions in air quality.

How do engineers reduce lost time? One innovative way Plano is approaching this problem is by removing left-turn traffic from the intersection. This modification adds the time normally assigned for left-turn movements to the time assigned for moving through and right-turn traffic. When this is done, left-turns are made by first turning right at the intersection and then making a U-turn at a safe location several hundred feet away. This innovative intersection design, called the Median Left-Turn (MLT),

works well at congested intersections with wide medians.

Plano's MLT design is the first of its kind in Texas. This design, which is fairly uncommon in the United States, is increasing in use as transportation engineers seek ways to effectively manage traffic flow and safety. When constructed at other locations, and prior to opening the design to traffic, drivers initially believed there would be no benefit from using this unconventional layout. But soon after opening the intersection, drivers quickly acknowledged that traffic congestion was significantly reduced because the long lines of left-turning vehicles no longer

Legacy/Preston Intersection Converts to Median Left Turn Lane

In as early as mid May 2010, the Legacy Drive at Preston Road intersection will be transformed into an intersection with a Median Left Turn (MLT), a first in Texas. The MLT is an alternative to an overpass and offers four valuable benefits: 1) improved driver safety, 2) reduced traffic congestion, 3) improved traffic flow, and (4) reduced air emissions.

As drivers transition to this new mindset of making a left turn, please be alert when approaching this intersection and follow these basic navigation tips.

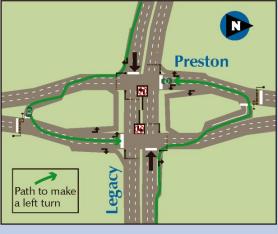
To make a left turn from Legacy Drive onto Preston Road, get in the right lane and turn right.

After turning right, merge left into the turn pocket. It's similar to a U-turn movement.

Follow the pavement markings and signal lights.

The signal lights are carefully synchronized to improve traffic flow and ensure driver safety.

View a video demonstration at www.plano.gov/turn.



Future Median Left Turn Lane Intersections:
Spring Creek Parkway at Coit Road Plano Parkway at Preston Road

Thank you for changing your driving habits to accommodate this intersection modification. Let's make driving in Plano better together.

blocked the through lanes, through traffic was delayed less, and collisions involving left-turning vehicles were eliminated.

So, how will the Plano MLT design work? Well, imagine yourself going west on Legacy Drive and you want to turn left to go south on Preston Road. Right now, you

would get into the left lane of Legacy Drive as you approach Preston Road. Once at the intersection you may have to wait several signal cycles to complete your left-turn movement. During the peak rush hour this may exceed five minutes. With the MLT design in place you would instead get into the right lane as you approach Preston Road. Because left-turns are no longer permitted at the intersection, the traffic signal stays green longer. Even if you have to stop while approaching Preston Road, the cars in front of you are making right-turns-on-red after they stop. Thus, you keep moving toward Preston Road. At the intersection, you turn right onto northbound Preston Road,

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## Median Left-Turn (MLT) Intersection Design

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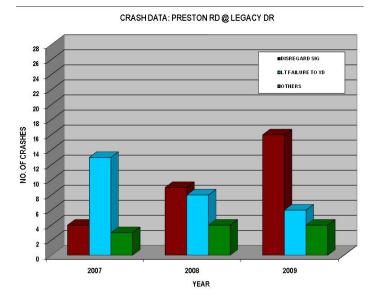
transition to the left lane over a distance of 500 feet, and before you know it, you enter into the U-turn lane. The lane curves around to meet southbound Preston Road where there is a traffic signal. The traffic signal turns green and you then proceed south on Preston Road through Legacy Drive. Even if you have to stop, using the MLT design to make your left-turn will save on average 1-1/2 minutes in travel time.

So under congested traffic conditions making a right turn and a U-turn is really a better way to make a left-turn!

#### **Quick Facts**

#### Background:

- 73,000 vehicles/day (49k Preston Rd, 24k Legacy Dr)
- Peak-Hour Legacy Left-turn (w/b AM peak): 509 (vph)



- Peak-Hour Intersection (AM peak period): 6,638 vph
- Left-Turn Traffic/Intersection Traffic (AM peak): 7.7%
- Left-turn Green Time (AM): 55 sec
- Signal Cycle Length (AM): 160 sec
- Left-turn Green Time/Cycle Length (AM peak): 34%

#### **Project Goals:**

Increase intersection flow and safety, Improve air quality, Reduce motorist delay, Minimize Right-of-Way takes needed to construct project

#### **Project Scope**

- Add additional through-lanes on Preston Road (one in each direction)
- Create or lengthen the existing northbound, westbound, and southbound right-turn lanes
- Add median U-turn lanes (north and south of the intersection)
- Keep the existing two "Texas U-Turn" lanes at the intersection
- Add traffic control signals at the two median U-turn areas
- Add traffic signing and pavement markings to safely guide drivers through the intersection

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## **TexITE Transit Committee**

TexITE is re-establishing its Transit Committee. The committee objectives are to:

- Advance the education of TexITE members on transit
- Provide transit project highlights in current TexITE newsletters
- Encourage transit innovation in Texas through special recognition and awards
- Keep members current on transit policy issues at the state and federal levels

An organizational session will be held at the TexITE summer meeting in Sugar Land. If you have an interest in participating in person or by email please contact Tom Ryden at Parsons via email at tom.ryden@parsons.com or by phone at (972) 244-6065.

All ideas are welcome, so if you have an interest, please submit what you would like this committee to accomplish ahead of the organizational meeting and stay tuned for more information!



#### **Dallas Section Activities**

#### Submitted by John Denholm III

2010 has been a busy year so far for the Dallas Section. The section played host to the annual winter district meeting in January, has held three section meetings, three younger member events, and hosted an ITE professional development webinar.

The Dallas Section currently has 140 paid members as of April 26<sup>th</sup>, 2010. The section has had excellent turnout at monthly meetings this year and looks forward to continued success as the year progresses.

The section hosted the following monthly meetings:

- Jan 15: Regional Transportation: Options and Issues by State Representative Robert Miklos
- Mar 12: Dart Green Line by Boro Dedeitch (Parsons)
- Apr 9: US 75 SPUI Interchanges: From Concept to Construction by Jeremy Wyndham (Jacobs), Spenta Irani (Jacobs) and Ceason Clements (TxDOT)
- May 14: Innovative Intersection Designs in Plano (Median Left Turns) by Lloyd Neal (City of Plano)

The Dallas Section **Professional Development Committee** has a goal of providing at least one training session per quarter by working with the firms of our members to host an event.

In the first quarter of 2010, BWR sponsored and hosted a Webinar titled "Overview of the 2009 MUTCD". This webinar was developed by ATSSA and the presenters where from the Federal Highway Administration. There were 42 attendees at the webinar.

## **Section News**

The Dallas Section has an active Younger Members Committee. At the district winter meeting held in Frisco, the Younger Members Committee sponsored the "Dave & Buster's Olympics." Twenty-eight TexITE members (7 teams of 4) competed in 4 events (Horse Race, Whack-a-mole, Skee-ball, and Pop-a-shot) to collect the most tickets. Congratulations to the winning team of Sean Merrill, David Halloin, Kelly Parma, and Cameron Williams, who each took home a \$25 Best Buy gift card for their stunning victory!

The Younger Members committee also began sponsoring monthly happy hours on the third Thursday of every month. Turnout for these happy hour events has ranged from 6 to over 20. The YMC met in February at Top Golf in Dallas, in conjunction with the Ft Worth TexITE Younger Members Committee and the ASCE Younger Members Group. About 20 people enjoyed playing at the technologically advanced driving range, which features computerized microchips in every golf ball that track your shots accuracy and distance while awarding points by hitting targets ranging from 20-250 yards away.

The second monthly happy hour was held in March at Barcadia in Dallas. Several TexITE members joined together to socialize and play Barcadia's collection of vintage arcade games, such as Skee-Ball, Ms. Pac-Man, Mario Bros., and pinball. The April happy hour was held at Sherlock's in Addison. The Younger Members Committee looks forward to continuing this monthly event.

The Younger Members Committee has also been tasked with starting a Dallas TexITE Scholarship. We are currently in

the planning stages, deciding on eligibility criteria, award amounts, and funding sources. We look forward to handing out our first scholarship very soon!

# South Texas Section Activities Winner of the 2010 TexITE Section Activities Award!!!

Submitted by Kerri Collins, PE, PTOE, LEED\* AP STITE has been selected as the recipient of the TexITE Section Activities Award for programs, events, training etc. held in 2009.

The Section Activities Award is designed to encourage and promote active involvement by ITE sections in activities promoting the purpose and objectives of ITE. The award recognizes the quality of activities offered by the section. The Section report was assembled and submitted by Rob Belarmino, STITE Vice President.

As the winner of the TexITE award, the STITE Section Activities Report now becomes the District 9 submission for the ITE International competition. A certificate and \$200.00 cash award will be presented to the Section officers at the Summer TexITE meeting in Sugar Land.

Funds were raised through sponsored business card ads in the newsletter; company logos featured on the Section website and sponsorship of the Annual Holiday Banquet. See http://www.texite.org/southtexas/. In addition to the regular monthly meetings, the following initiatives (some made possible due to the fundraising efforts) were implemented by STITE:

 STITE Board established policy to provide financial support for Board members attending TexITE or ITE

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#### International meetings.

- First Annual STITE Scholarship Awarded by new Scholarship Committee.
- 2009 STITE Recognition Award honoring service provided by Andy Ballard, Section Officer 2007-2008
- Increased student participation and increased membership (17) in the UTSA Student Chapter.

#### **First Annual Future City Competition**

#### Submitted by James Lutz PE

The first Annual Future City Competition for the South Central Texas Region was held January 23<sup>rd</sup> at Texas State University. Fourteen teams competed in the competition, designed to help 7<sup>th</sup> and 8<sup>th</sup> grade students discover and foster interest in math, science and engineering. The 1<sup>st</sup> Place team, St. Thomas Moore School from Louisiana, went on to Washington D.C. to compete at the national level.

The students were judged on three primary categories: 1) developing a computer model of their Future City using SimCity, 2) researching and writing an essay about the City and 3) developing a 3D Model of their City. This year's theme was, "Providing an affordable green living space for people who have lost their home due to a disaster or financial emergency."

#### 1st Place

- EOS Team: St. Thomas Moore School, Baton Rouge, Louisiana
- Teacher: Shirley Newman
- Students: Conley Bourgeois, Theresa Sherburne, David Richardson,
- Engineer Mentor: William Harmon Wall, P.E.

### **Section News**



#### 2nd Place

- Pro Boto Team: Our Lady of Grace Homeschool, San Antonio, Texas
- Teacher: Melissa Lutz
- Students: Colten Lutz, Jaren Carrasco, Kenneth Graham



• Engineer Mentor: James A. Lutz, P.E.

#### 3rd Place

- Hihihihihihihihihihihi Team: Corbett Junior High School, Shertz, Texas
- Teacher: Glenda Schneider
- Students: Jonathan Mitchell, Joseph Barth, Kenneth Miess



• Engineer Mentor: Andrew Hunt

A special thanks to the volunteers who helped make the event a success:

- Norma Antunano, Hewlett-Packard, IEEE, ASQ
- Rob Belarmino, Pape-Dawson Engineers, Inc., ASCE, TSPE, NSPE, STITE, ITE
- Lyle Boyea, Teacher System of Texas, IEEE
- Mehmet Boz, URS Corporation
- Laura Force, Pape-Dawson Engineers, Inc., ASCE
- Alisa Gruber, Lockwood, Andrews & Newman, Inc.
- Sani Nassif, IBM, IEEE, ACM
- Kevin Powers, Future City New England (judged SimCity4 simulations)
- Carl Schwing, City of Laredo, ASCE, AAEE
- Dean Schneider, Texas Engineering Experiment Station, IEEE, AFA, HKN, Sigma Xi
- Rosie Smiley, Alan Plummer Associates, Inc., ASCE, WEAT
- Ty Tuner, Klotz Associates, ASCE, USGBC
- Gary Winters, BCP Engineers & Consultants, IEEE
- Mijia Yang, University of Texas San Antonio, ASCE, ASME, NSPEA

## Teens In The Driver Seat: TTI program saves lives of Teen Drivers

#### Submitted by Samantha Holland, TTI

A unique program developed by the Texas Transportation Institute (TTI) is growing rapidly in Texas and beyond, and saving lives in the process.

Teens in the Driver Seat (TDS) is a peer-

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to-peer driving safety program for teenagers that began in 2003 at a pilot school in San Antonio. The program is now in more than 350 schools in Texas, and a handful of schools in Connecticut, California and Georgia.

Car crashes are the number-one killer of teenagers in America, which is the equivalent of one airplane full of teenagers crashing each week for an entire year.

"Law enforcement, parental involvement and driver training are all essential to keep teens safe, but peer influence is also important," said Russell Henk, TDS director and TTI senior research engineer. "That's what TDS is all about."

The premise behind the program is that teens listen to each other more than they listen to anyone else. TDS teens are involved in every aspect of the program. They are the message carriers, and are also involved at the developmental stages.

It works too. A recent case study done by researchers at TTI concluded that safer driving habits by teenagers in Garland, Texas, have helped to sharply reduce fatal crashes in that community. Garland is a very unique community when it comes to TDS, because all seven high schools in the Garland Independent School Distract have adopted the program.

Before the program was implemented by the GISD, there were 12 fatal crashes involving teens in the Garland area. In the four years since, there has only been

"Our research team found that a graduated driver license law can be made more effective when it is reinforced by

## **Section News**

peer-to-peer efforts like the Teens in the Driver Seat program," Agency Director Dennis Christiansen said. "Laws provide a necessary foundation, and peer influence can make those laws work better."

A large focus of the program is on the five major risks for teen drivers, some of which have not received much attention in the recent past. The risks are (in order of severity) driving at night, distracted driving, speeding, not using safety belts and driving under the influence.

A few examples of the way TDS teens make the message stick with their peers are:

- Hosting teen safe driving days at their high schools;
- Putting up posters around their schools about safe driving; and
- Handing out TDS promotional items at lunches and sporting events.



Posing for photo at Garland news conference (from left to right): TDS Program Director Russell Henk, TTI Agency Director Dennis Christiansen, TDS Advisory Board Member Jaywin Malhi, Garland Youth Council Sponsor Dorothy White, TDS Advisory Board Member Brianda Reyes, State Rep. Joe Driver, and City of Garland Transportation and Engineering

Since the program began the number of teen drivers involved in fatal crashes has dropped more in Texas than in any other

Director Robert Wunderlich.

state. That is due in part to how TDS compliments the state's graduated driver licensing laws.

For more information on the TDS program, visit <u>t-driver.com</u>.

## **Brazos Valley Section Activities**Half Pint Library Book Drive

#### Submitted by Vichika Iragavarapu

This year the BVITE Section supported the local "Half Pint Library Book Drive," a library program sponsored by Half Price Books to collect and distribute children's books to those in need. The program is now in its 12th year and has collected more than 2 million books for pediatric patients, community centers, special schools and many more children in need.

The BVITE section collected 30 new and gently used young children's books, and delivered them to the Half Price Books store on Texas Avenue in College Station.

#### **Downtown Bryan Parking Study**

#### Submitted by Amber "Nikki" Norton

In an effort to better accommodate and plan for the flourishing development of Downtown Bryan, Texas, the City of Bryan Traffic and Transportation Department has undertaken a Parking Study. The project scope includes a rather comprehensive effort to obtain the input of both stakeholders in the area as well as the general public through measures including public meetings and surveying.

Alliance Transportation Group, Inc. is serving to perform the parking analysis and provide recommendations to the City of Bryan for improvements to on- and off- street parking in Downtown

(Continued on Page 11)



## **Section News**

Bryan. Through their innovative methods of data-collection, including the use of a video based geo-referenced system for a parking inventory, turnover and occupancy study, Alliance has collected and packaged a comprehensive results package showcasing parking trends and occurrences in the area, including occupancy and vehicle turnover data by time of day by specific areas. Using their inclusive findings, Alliance has been able to pinpoint problem areas as well as areas with ample and adequate parking facilities, in order to guide the City of Bryan Traffic Department in its current and future practices regarding parking in Downtown Bryan as development continues, including but not limited to metered parking and time regulations and future usage impacts.

The City of Bryan is fortunate in the ability to use such comprehensive data and information on parking in the downtown area in order to accommodate the needs of all who visit. For more information about the project contact Nikki Norton with the City of Bryan at <a href="mailto:anorton@bryantx.gov">anorton@bryantx.gov</a> or 979-209-5030.

### Bryan/College Station Partners Undertake Proactive Initiative to Prevent Congestion Growth

#### Submitted by **Kevin Balke**

The impacts of congestion are not just confined to major metropolitan areas – even small to medium sized cities experience issues with congestion that impact the quality of life. Small to medium sized cities need options and strategies for addressing their own unique congestion situations.

Recently, the Bryan College Station Met-

ropolitan Planning Organization (BCSMPO), the City of Bryan, the City of College Station, the TxDOT Bryan District, Brazos County, Texas A&M University, and the Brazos Transit District have initiated an effort to begin deploying a regional concept for traffic operations in the Bryan/College Station area. This regional concept of operations, called the Bryan/College Station Mobility Initiative (BCSMI), is an example of how small-tomedium sized cities can address their congestion issues head-on. Through the BCSMI, local partners are developing systems and deploying technology to prevent congestion from growing out of hand and be in front of (instead of reacting to) the congestion growth curve. The BCSMI's primary objectives are as follows:

- Improve traffic signal coordination on arterial roadways that cross jurisdictional boundaries,
- Improve real-time operational responses to unusual traffic conditions such as during special events & incidents from a regional perspective,
- Provide better coordination of traffic operations during construction activities that have regional impacts,
- Utilize cutting edge technologies to collect and disseminate regional traffic conditions in real-time, and
- Capture & retain operations data that can be used to assist with short & long-term operational planning.

With the assistance of the Texas Transportation Institute, the BCSMI is currently implementing technologies that will allow the local partners to share video surveillance and operational data, collect real-time travel time information from arterial streets (using a Bluetooth

monitoring system), construct a regional traffic conditions display to disseminate travel time and construction information, develop a data archive for storing regional traffic information, and develop a regional model and analysis protocol for evaluating the regional impacts of construction in the Bryan/College Station area. The project is expected to continue into 2011. You can find out more information about the project at bcsmobility.org or by contacting Kevin Balke with TTI at k-balke@tamu.edu or 979-845-9899.

#### **Greater Fort Worth Section**

City of Fort Worth Installs Radar Stop-Bar System

Submitted by Ian Lee

The City of Fort Worth has made an initial purchase of 78 radar stop-bar presence detection devices for 19 upcoming intersections to be built or upgraded within the recent future. After installing the first Wavetronix Matrix system within Texas, the city performed a nine-month evaluation of the system prior to making this initial purchase. Mark Mathis P.E. and Marisa Conlin P.E. led the evaluation which included analysis of the system's performance but also included in-depth training of the system. Following this evaluation and training, the city was extremely confident in the performance and reliability of the system. Mathis P.E., Traffic Services Manager for Fort Worth states, "We desire a system where you install the equipment, shut the cabinet door, and the equipment does its job. Judging from our evaluations, this system is doing just that." For more information you can contact Ian

(Continued on Page 13)





#### **Meeting Location**

Sugar Land, located in eastern Fort Bend County, is approximately 20 miles southwest of downtown Houston. Sugar Land is a full-service municipality providing the highest quality of affordable services to meet the needs of its citizens. Masterplanned communities, welcoming neighborhoods, outstanding schools, libraries, civic organizations and other resources enhance home values and create a sense of belonging.

The hotel is located in Sugar Land Town Square, an inviting mix of Main Street activity that attracts people early in the morning until late at night. Where working, shopping, living and playing combine to make each more rewarding. A city center that blends the lives of businesses, families, neighbors and guests in a way that makes life simply better.

#### Hotel

#### **Sugar Land Marriott Town Square**

16090 City Walk Sugar Land, TX 77479 (281) 275-8400

TexITE has secured a block of rooms at the rate of \$135.00 per night (plus tax). This rate will include Wednesday night (for those that arrive early) and Saturday night (for those extending their stay). If you wish to extend your stay outside of these dates, you will need to book a separate reservation on the Web site or contact the hotel directly. The rate will be valid as long as hotel has rooms avail-

able, up to and including June 4, 2010.

#### **Technical Tour**

Join us for a tour of the Sugar Land Traffic Management Center and the Harris County Toll Authority Traffic Management Center on Thursday afternoon. During the course of the tour, participants will also observe some low-cost and innovative intersection treatments that are being implemented in Sugar Land and a look at I-10 managed lanes. Round-trip transportation will be provided from the conference hotel (leaving at 1:00 pm). The tour will conclude between 4:00 and 5:00 pm - in time to return to the hotel and attend the ethics seminar on Thursday afternoon.

### **Engineering Ethics Seminar**

An engineering ethics seminar will be held on Thursday from 5:00-6:00 pm (prior to the Highway Products Group reception) at the conference hotel. The seminar will satisfy the continuing education professional ethics requirements required by the Texas Board of Professional Engineers.

### **ADA Accessibility Workshop**

This one-day workshop provides you indepth coverage of the Title II requirements for public entities under the Americans with Disabilities Act (ADA) and the revised ADA-ABA guidelines in comparison with the currently enforceable ADAAG standards. Also covered are the implications of the revised state standards. Accessology will help you under-

stand what standards to use, and when specifically when it comes to designing, operating, and maintaining transportation facilities. The workshop will be taught by Accessology. The cost of the training class is \$25 and can be paid for along with your meeting registration.

## FHWA Alternative Intersections/Interchanges Workshop

TexITE is pleased to partner with FHWA in hosting an informational workshop on some of the latest innovations intersection design and operation. With limited right-of-way, budget restraints, and incremental future development, transportation engineers must find innovative solutions to address current and future congestion issues while maintaining safe and efficient operations. Attend the AIIR workshop to learn how alternative intersection and interchange designs can help you address these issues. The workshop will be held on Friday morning from 7:30 am to 11:50 am at the conference hotel. There is no additional cost to attend the workshop.

#### **Friday Night Social**

The George Ranch Historical Park's history follows family lines beginning in 1824 when Texas was still part of Mexico. The first Texas pioneers settled near the Brazos River. In the years since, the Ranch has passed through four generations and grown into one of Fort Bend County's landmarks.

Today, the George Ranch is a 23,000-acre





working ranch. The family's original "home place" is at the core of the George Ranch Historical Park where the legends and legacies of those who shaped this place come to life every day. Authentic locations, historic homes, costumed presenters and a remarkable story of determination and courage set the stage for trekking through Texas history.

#### **Golf Tournament**

Join fellow members and vendors at <u>Sienna Plantation</u>. Voted 2003's best public golf course in Fort Bend County, Sienna

Plantation is one of the Houston area's most enjoyable and challenging places to play. The terrain is fairly flat, but the course has been contoured to provide dramatic elevation changes that will accent and enhance the design with artistic forms and shadows. Live oaks, and an abundance of mature cedar elms and other native trees provide a naturally wooded setting. Broad lakes and winding creeks are intertwined with golf course corridors to create distinctive risk/reward shot values. Tee times will begin at 9:00 am on Thursday.

#### **Texas Hold 'Em Tournament**

CCTexITE will be hosting a Texas Hold 'Em Tournament on Thursday evening following the Highway Products Group reception. Join in the game for fun and prizes. No experience necessary.

#### **Contact Information**

#### **Richard Smith**

Local arrangements co-chair (713) 837-7114

#### **Ron Jenson**

Local arrangements co-chair (713) 755-4473

## **Section News**

Lee at ianlee@twincresttech.com or Mark Mathis P.E. at mark.mathis@fortworthgov.org.

#### **Greater Houston Section**

Submitted by Matt Johnson

Congratulations to **Mr. Linhua Li**, a traffic engineer with TEDSI Infrastructure Group, passed the Texas PE exam

We are sad to see Mr. Gary Schatz, PE, PTOE and Mr. Gonzalo Camacho, PE leave the Greater Houston Section of TexITE. Both gentlemen have recently relocated to the Capital Area Section. Mr. Schatz has accepted a position with the City of Austin as the Assistant Director of Transportation. Mr. Schatz's new email address is gary.schatz@ci.austin.tx.us. Mr. Camacho has accepted a position

with the Austin office of Freese and Nichols, Inc. as a Senior Transportation Engineer. Mr. Camacho's new email address is gec@freese.com. While we will miss both of these gentlemen, we do offer them our congratulations and our best wishes in their new city!

Another of our engineers has recently changed positions. Mr. Charles Stephens, Jr., PE, PTOE, LEED AP has accepted a position with Binkley and Barfield Consulting Engineers as a Senior Project Manager and Traffic Group Manager. Mr. Stephen's new email address is crs@binkleybarfield.com. Good luck with the new job Charles!

#### **Capital Area Section**

No report received.

## **People News**

The following members have recently attained PTOE certifications: **Sudheer Dhulipala** (Jacobs Engineering Group, Inc.), **Praveen Pasumarthy** (Wilbur Smith Associates) and **Mohan Atluri** (Gunda Corporation). Congratulations to all of them on their accomplishment.

**Tom Urbanik, PhD, P.E.** has returned to Texas as a Senior Principal with Kittelson and Associates, Inc. in Round Rock, TX.

Elizabeth Crowe, P.E. and Reneé Naquin Cousins, E.I.T. joined Traffic Engineering & Parking Services Group of Dunaway Associates, L.P. in their Dallas office. Elizabeth (Senior Transportation Engineer) has over 18 years of traffic engineering experience. Reneé has traffic experience in the Austin area and relocated to Dallas as a newlywed.



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Susan Langdon at <a href="mailto:roster@texite.org">roster@texite.org</a>





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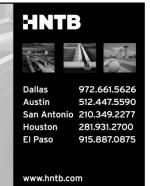
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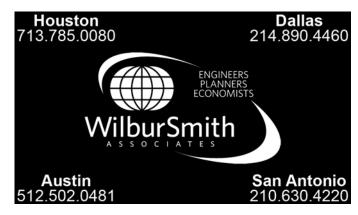
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