Illinois Interchange

Illinois Technology Transfer Center

Vol. 13 No. 2 Summer 2005

Experimental Features Program: Prefabricated Cast-in-Place Truncated Domes

by Nathan O'Leary-Roseberry, Traffic Engineer, Village of Hoffman Estates

The Americans with Disabilities Act requires the use of truncated domes at all locations where pedestrians are required to cross a hazardous vehicular way. Like many other municipalities throughout the state of Illinois, the Village of Hoffman Estates fulfilled this requirement using the IDOT recommended stamped concrete method. We have since experienced many problems with this method including tedious installations, problems inherent to two separate concrete pours, and also poor durability of the stamped concrete surface. During this time, there has been much improvement in the quality and number of truncated dome products available. Over forty companies currently offer their unique solution to the truncated dome dilemma. How would a municipality know which product to use in place of the stamped

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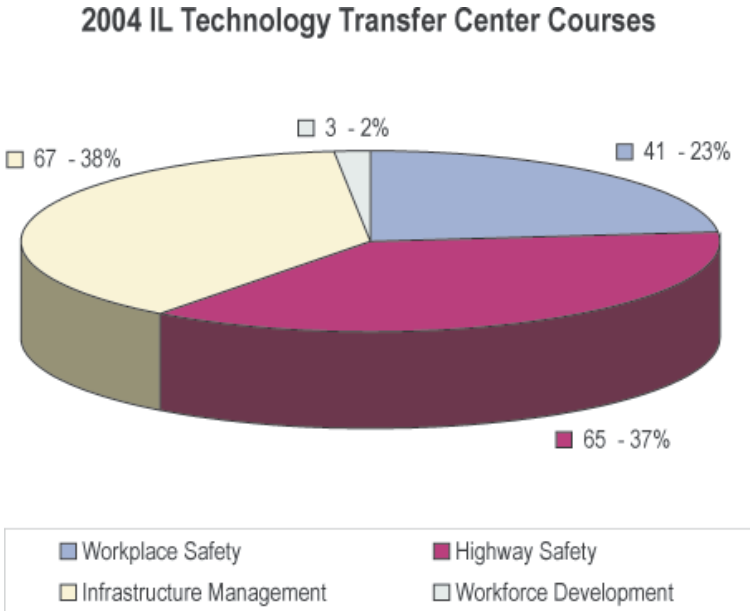
INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation
Bureau of Local Roads and Streets

Federal Highway Administration

From the Desk of . . .

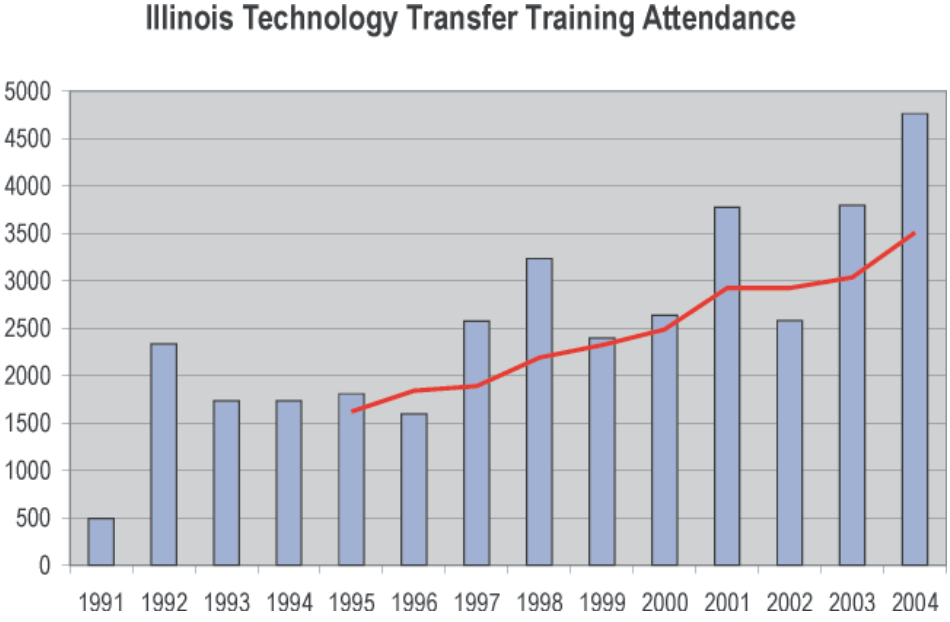


The Illinois Technology Transfer (T^2) Center along with 57 other Local Technology Assistant Program (LTAP) Centers recently submitted our Program Assessment Report (PAR) to the national headquarters. The PAR is a quantitative evaluation of the services provided to local agencies over the preceding calendar year.

In 2004, the Illinois Technology Transfer Center held 176 training courses covering 32 different topics. We had over 6,600 enrollments that resulted in 4,760 students attending courses. This resulted in 27,251 contact hours. On the national level, the 58 LTAP Centers, including the Illinois T^2 Center, held 4,902 courses that resulted in 121,277 participants and 1,031,402 contact hours. On average each center held 84.5 courses with 2,091 participants and 17,783 contact hours.

The Illinois Interchange Newsletter is distributed to over 4,600 people including all county engineers, 1,530 municipal employees, 1,468 highway commissioners, and 30 international organizations. The national LTAP Centers' total circulation includes over 500,000 people. Besides newsletters, the LTAP Centers also distribute or loan publications and videos. In 2004, 311,152 items were distributed; the IL T^2 Center distributed 7,218 items.

The Illinois Technology Transfer Center continues to expand our program with the help of Illinois local agencies, the Federal Highway Administration, and the Illinois Department of Transportation. For the complete national report and Illinois T^2 Center report go to www.ltapt2.org/Snapshot.htm. Please contact the Illinois Technology Transfer Center with any questions or comments about this report or any other issue.



Kevin Burke
T^2 Program Manager

USLIMITS: Expert Speed Zoning Advisor

by Davey Warren, Federal Highway Administration

USLIMITS is a web based expert advisor system designed to assist practitioners in determining appropriate speed limits in speed zones. It turns the subjective decision-making process of current speed zoning practice into an user friendly, logical and objective approach for setting credible, safe and consistent speed limits. The benefits of USLIMITS are:

- Increased likelihood of similar roads zoned with similar speed limits.
- Appropriate speed limits for road and traffic characteristics
- Consistent speed limits within states and between states.
- Increased acceptance and compliance with speed limits by motorists.
- Reduced spread in speeds leading to reduction in accidents.
- Tool for educating the public and responding to concerns.
- Supports integrity of enforcement.
- All users benefit immediately from update.

USLIMTS is based on other expert speed zone Advisors, collectively known as XLIMITS, developed for many of the Australian state road authorities. USLIMITS is the next generation in this series specifically developed to be used over the Internet. The logic used in these past versions has been streamlined and revised to include elements of speed limit setting philosophy used in the United States such as posting in 5 mi/h multiples.

Data Input and Output

USLIMITS calculates the appropriate speed limit for a section of road through the consideration of the following information input by the practitioner:

- density of surrounding development (e.g. high density, low density, hamlet or rural); desired levels.
- frequency of roadside access (e.g. number of residential driveways, commercial, industrial, shopping, and special activity properties, and the number and type of intersecting roads);
- road function (e.g. traffic movement vs. access to abutting properties);
- road characteristics (e.g. paved width, divided or undivided, lane width and number of lanes, sight restrictions);
- freeway conditions and important high speed road characteristics (e.g. interchange spacing, AADT, shoulders);
- existing vehicle operating speeds;
- adjoining speed limits; and
- any special conditions that may exist on the road section (e.g. adverse alignment, pedestrian and roadside activities, high crash rates etc).

The output includes a recommended speed and concerns that might require further investigation.

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USLIMITS . . .

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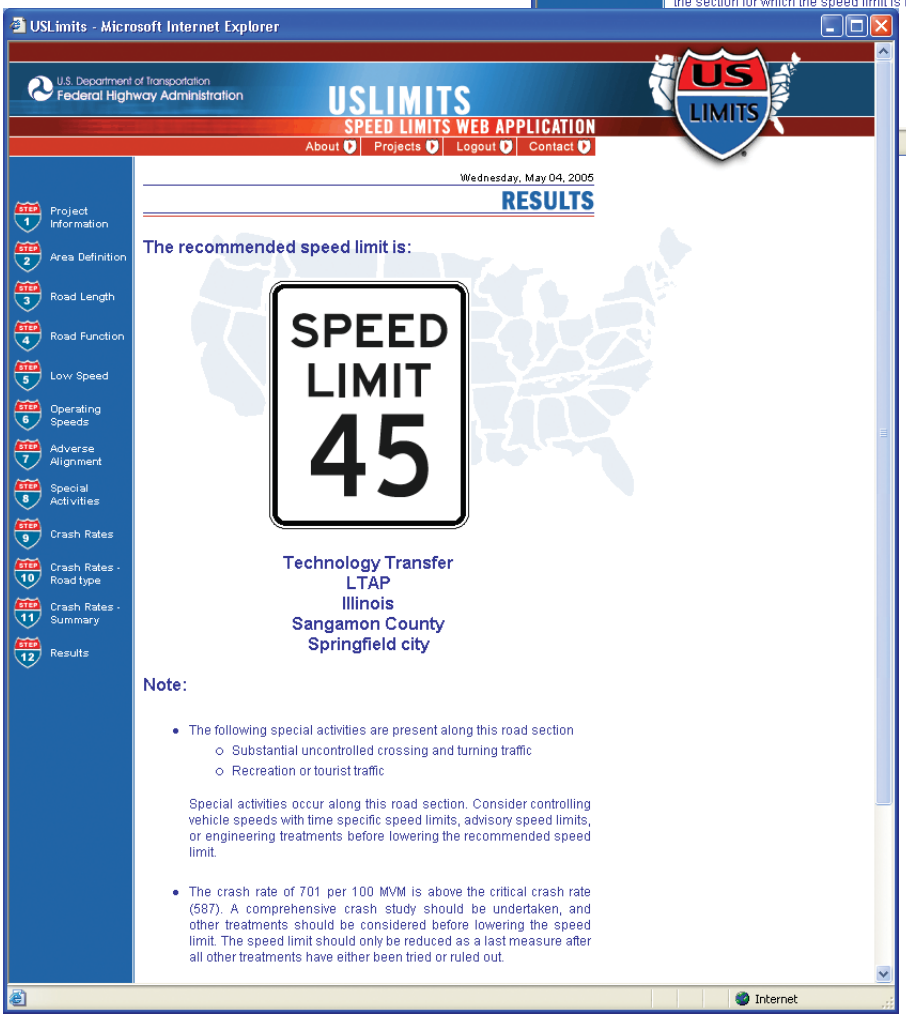
USLIMITS is a web based application currently in beta testing. The only requirements to run USLIMITS are a computer with a web browser and access to the Internet. To use the full functionality of USLIMITS, including the capability to save and revise projects, a username and password is required. However, anyone can trial USLIMITS by entering guest as the username and password. Guests cannot save projects or view the more detailed speed zoning report.



For More Information

For additional information about this effort or to set up an account to access USLIMITS, contact:

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USLIMITS is the intellectual property of ARRB Transport Research. For more information about developing computer based expert systems for speed limit setting contact:

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ARRB Transport Research
AUSTRALIA
Phone: 011+61 39881 1555
Email: info@arrb.com.au.web application

Rehab of Streets & Highways Seminar

On April 13, 2005, the Technology Transfer Center presented its annual Rehabilitation of Streets & Highways Seminar in Glenview, IL at the Northeastern Illinois Public Service Training Academy (NIPSTA). Over 110 local agency personnel attended the seminar to learn about new and innovative ways to preserve and rehabilitate highways.

Larry Galehouse from the Pavement Preservation National Perspective began the morning session by describing the concept of pavement preservation and the benefits of preventive maintenance. He also highlighted rehabilitation and preservation methods.

The morning breakout sessions focused on seal coats, spray injection, microsurfacing, white topping, crack sealing, and chip seals.

The afternoon breakout sessions gave participants an opportunity to learn about geo-composites for reflective cracking, pavement markings, hot-in-place recycling and sign retroreflectivity.

We would like to thank Joe LaRusso from the Illinois Pavement Preservation and Maintenance Association for helping organize this seminar. A special thanks also goes to Bob Lahey and his staff at the Northeastern Illinois Public Service Training Academy for hosting the Rehab seminar.

The organizations below partnered with ILPPMA to sponsor the lunch and refreshment breaks during the seminar. Without these organizations, the seminar would not have been a success.

CAM LLC
FAHRNER Asphalt Sealers, Inc.
MSi
URETEK USA
AC PAVEMENT STRIPING CO.
SKC CONSTRUCTION
CRAFCO INC AN ERGON COMPANY
TAPCO TRAFFIC AND PARKING CONTROL CO., INC.

Hampton Equipment
American Asphalt

2004 IDOT Engineer of the Year Catherine Kibble, District 1

Throughout Cathy's career she has worked to make the department better. In 1993, she was selected to help develop a training course on the Phase I process. After developing the course she became an instructor and received the Program Development Instructor of the Year Award in 1998. Cathy received the first Annette Mills Achievement Award in 2001 in recognition of her dedication to the Program Development training program.

For the past two years, Cathy has supervised four consulting firms that prepared the contract plans for the $410 million dollar reconstruction of I-80/94 Kingery Expressway from the Tollway Oasis to US 41 in Lake County Indiana. This section carries 168,000 vehicles per day with 30 % trucks. The project consists of 4.1 miles of 30 year pavement design, construction of 26 bridges, and erecting 30 retaining walls. The project is split into 25 contracts to be let over a three year span. Currently, 19 projects have been let for a total of $281 million.

Diane O'Keefe, Region 1 Engineer (left), and Secretary Martin (right) give Cathy (center) her Engineer of the Year Award

Due to the extensive amount of coordination required for this project, District 1 initiated its first Web Based Project Management. Cathy was instrumental in selecting software, as well as setting up and testing the site with the assistance of the consultants and District Information Services Section. The website tracks all correspondence and plan preparation questions asked by the consultants. It also provides a way for consultants and the district to exchange plan sheets.

Cathy has displayed exceptional engineering and leadership skills in coordinating the efforts of the consultants with each other and IDOT Bureaus.

The Technology Transfer Center wishes to congratulate Cathy on this award. Your efforts are greatly appreciated and you deserve to be named as Engineer of the Year for 2004.

Engineer of the Year Nominees

Catherine Kibble (Statewide Winner), Region 1, District 1
Geoff Smith, Region 2 District 2
Andy Mrowicki, Region 2 District 3
Christopher Maushard, Region 3 District 4
Chris Smith, Region 3 District 5
Laura Mlacnik, Region 4 District 6
Thomas Kreke, Region 4 District 7
Patti LeBeau, Region 5 District 8
Larry Anderson, Region 5 District 9
Gary Galecki, Central Office

2004 IDOT Technician of the Year Roy Williamson, Local Roads and Streets

Roy started his career with the department in 1984 in the Central Office Print Shop. He was instrumental in bringing new technology to the printing department and improving turn around time and print quality. Roy worked closely with the former Office of Public Affairs to upgrade the print shop's color capabilities.

In 2001, Roy became the Technology Transfer Center's Program Development Technician. Roy quickly adapted to his new role as the only local agency flagger trainer. He recognized the need to increase the number of local agency personnel that received this training.

By recruiting additional instructors and partnering with local agency risk management associations, Roy increased the number of students from 600 in 2001 to over 1,250 in 2004.

The rest of the local agency training program also flourished under Roy's guidance. In 2004, the Technology Transfer Center held 167 courses covering 34 topics with an attendance of over 4,100. These results are record numbers for the Center; however, Roy managed this record year while reducing expenses.

Chuck Ingersoll, Local Roads Engineer, (left) and Secretary Martin (right) give Roy (center) his Technician of the Year Award

Roy also championed the Center's grant application to FHWA's Resource Center that resulted in $28,000 to assist the Illinois State Police for training high school students on work zone awareness. This training will be vital to the department's goal of reducing fatalities on Illinois highways.

Roy's dedication and safety focus are extremely valuable assets to the Illinois Technology Transfer Center and the Illinois Department of Transportation.

The Technology Transfer Center wishes to congratulate Roy on this award. Your work ethic and concern for worker safety make you an ideal recipient of Technician of the Year for 2004!

Technician of the Year Nominees

Edward McGuire, Region 1 District 1
Brent Hasenauer, Region 2 District 2
Carl Rothgeb, Region 2 District 3
Andrew Pilkington, Region 3 District 4
David Albers, Region 3 District 5
James Thompson, Region 4 District 6
Michael Worthey, Region 4 District 7
Thomas Fields, Region 5 District 8
Brandon Hill, Region 5 District 9
Roy Williamson (Statewide Winner), Central Office

Truncated Domes . . .

(continued from page 1)

concrete method? There have been a few studies done by other State Departments of Transportation, but with so many new products, they have become rapidly out of date.

For these reasons, the Village of Hoffman Estates will be conducting an Experimental Features Project this year to evaluate a variety of prefabricated cast-in-place truncated dome products. We have selected candidates, using the previous studies as a guide, that are simple to install and should be durable. Each product will be rated on its ease of installation, cost, aesthetics, compliance with ADA, and its durability after a winter snow plowing cycle. The candidates will be rated at time of installation and periodically throughout a winter season. At each evaluation, the number of truncated domes still remaining will be inventoried. The end result of this project will be a detailed evaluation of pre-fabricated products that should allow local agencies to approve the use of certain pre-fabricated products in lieu of the stamped concrete method with confidence. Compliance with the Americans with Disabilities Act is a goal for all municipalities throughout the state. Hopefully this project can provide a piece of the puzzle.

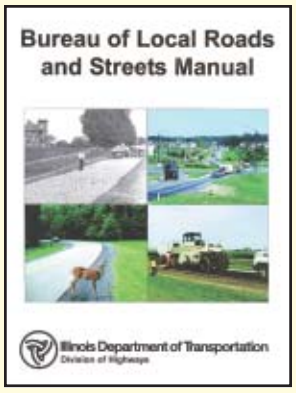
New Policy Manual for Local Agency Highway Projects

The new Bureau of Local Roads and Streets Manual is now available on Illinois Department of Transportation's web site effective April 4, 2005. This manual will replace both the Bureau of Local Roads and Streets' Federal-Aid Procedures for Local Highway Improvements (FAPLHI) and Administrative Policies manuals. The new manual may be found at www.dot.il.gov/blr/manuals/blrmanual.html.

The proposed timeline for use of the new manual is as follows: Any design begun after April 4, 2005 should use the new manual. The old manuals will be used for projects submitted before April 4, 2005. For projects already started and submitted for review between April 4, 2005 and January 1, 2006, the local agency will be encouraged to make changes in the design to meet criteria in the new manual; however, locals will have the option of using the criteria in the old manuals. The decision on which criteria to follow will be documented.

All projects submitted for review after January 1, 2006 must use the design criteria in the new manual, unless a variance request is approved by IDOT. Questions regarding the difference between the old and new manuals for existing projects should be directed to the district.

Users of the manual are encouraged to inform the Bureau of Local Roads of any inconsistencies, errors, need for clarification, or any other questions or comments.



Comments may be sent by e-mail at BLRDOTManual@dot.il.gov or by completing and mailing the BLRS Manual Comment/Correction Form included in the manual.

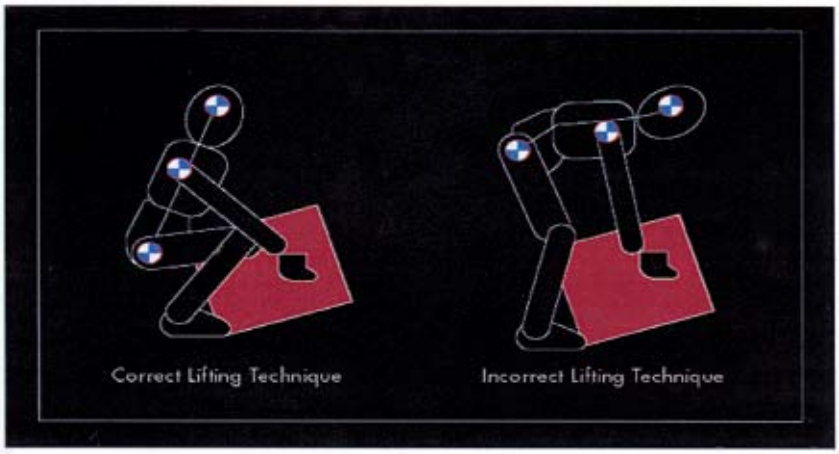
Don't Let Lifting Become a Strain

There are four questions to ask before you begin lifting:

1. Is this too heavy for me to lift and carry alone?
2. How high do I have to lift it?
3. How far do I have to carry it?
4. Am I trying to impress anyone by lifting this?

After assessing the situation, you can determine if you're able to lift the object on your own or if you should ask for help. At work, contact your supervisor or another employee; at home, ask a friend, family member, or neighbor. Once you've determined that an object is safe for you to lift by yourself, keep the following lifting precautions in mind and make a habit to use them:

- Use slow and smooth movements. Do not use hurried or jerky movements.
- Keep your body facing the object while you lift it. Do not twist your back.
- Keep the load close to your body. Do not reach out to lift or raise object above your head.
- Never carry a load that blocks your vision.
- Grip the object with your entire hand, rather than just your fingers.
- Draw the object close to you, holding your elbows close to your body to keep the load and your body weight centered.



Approximately 10 million employees suffer work-imparing back injuries each year, resulting in productivity loss and billions of dollars towards workers' comp, according to the Department of Labor. Back strains are the most common workplace injury, and injuries from back strain off the job can be just as painful - and cost workers lost time.

- Let your legs do the work. Bend at the legs and push up from the waist.
- Keep your back straight and tighten your stomach muscles.
- Use dollies, carts or other mechanical equipment whenever possible.
- Point your feet in the direction you want to move. This will prevent you from twisting your body.
- Set the load down by squatting while maintaining the natural curve of your spine.
- The best level to lift an object is between your knees to your shoulders. If possible, store materials at knee level.
- Reduce the weight and size of the load whenever this is an option.
- Don't overdo it! If you have to strain the carry the load, it's too heavy!

You can also reduce the risk of a back injury by keeping your back and abdominal muscles strong and flexible through exercise. Remember also to eat healthy, drink plenty of water to avoid dehydration, and get plenty of sleep. Avoid sleeping on your stomach; this can also cause back strain.

(Permission to reprint granted by the National Safety Council, a membership organization dedicated to protecting life and promoting health.)

Calendar of Events

Illinois West Central Highway Commissioner's Summer Seminar	June 14-15, 2005	MaComb, Illinois
Illinois HCA Summer Seminar	July 30 - August 2, 2005	Peoria, Illinois
IML Conference	September 22-24, 2005	Chicago, Illinois
Illinois Public Service Institute	October 2-7, 2005	Effingham, Illinois
IACE Fall Meeting	October 5-7, 2005	Peoria, Illlinois
Illinois Traffic Engineering & Safety	October 20-21, 2005	Champaign, Illinois
TOI Educational Conference	November 13-16, 2005	Peoria, IL
Illinois Bituminous Paving Conference	December 1, 2005	Champaign, Illinois
92nd Transportation & Highway Engineering (THE) Conference	February 21-22, 2006	Champaign, Illinois
NACE Annual Meeting	April 9-13, 2006	Grand Rapids, Michigan
APWA Snow Conference	April 30 - May 3, 2006	Peoria, IL

Transportation & Highway Engineering (THE) Conference

The 91st annual THE Conference was held at the Illini Union on the campus of the University of Illinois at Champaign-Urbana on February 22 - 23, 2005. Tuesday morning's speakers discussed "A Focused Approach to Safety", "Continuous Flow Intersections", "Pavement Preservation", and "Rebuilding for Enduring Freedom". This day's technical topics were followed by the annual fish fry hosted by the Illinois Concrete Company.

On Wednesday, Rick Capka, Deputy Administrator - Federal Highway Administration, and Tim Martin, Secretary of Illinois Department of Transportation, presented the reauthorization effort from the federal and state perspectives. The conference concluded with lunch and a magic show.

Speaker - Rick Capka

Mark your calendars for the 92nd THE Conference on February 21 & 22, 2006.

Calendar of Events

Would you like to have your conference or meeting announced in the Illinois Interchange Newsletter? We have had a overwhelming amount of agencies that would like for us to publish the dates and locations of their conferences, seminars, and meetings in the newsletter. Since each individual request can take a considerable amount of space, we have created a Calendar of Events Page. The Calendar of Events Page will appear in each issue of the newsletter. If you would like to have your event listed, please complete the form at the bottom of the page and return:

By mail: Illinois Department of Transportation
Technology Transfer Center
2300 South Dirksen Parkway; Room 205
Springfield, Illinois 62764

By fax: 217/785-7296

If you have any questions, please contact Kevin Burke at 217/785-5048.

Calendar of Events Request Form

Name of Conference/Meeting _____

Sponsoring Agency _____

Dates of Event _____

Location _____

Target Audience _____

Contact Person _____ Phone Number _____

Please note that the submission of this form does not guarantee placement of the event in the Newsletter. The Technology Transfer Center reserves the right to exclude events.

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to transfer the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement.

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Visit our website at www.dot.il.gov/blr/t2center.html

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