INSIDE:
Learn about our new work zone safety training and programs for engineers.
PAGE 14
The Technology Transfer Program is a unit of the Institute of Transportation Studies at the University of California, Berkeley. Our mission is to bridge research and transportation practice by facilitating and supporting the planning, design, construction, operation, and maintenance of efficient and effective state-of-the-art transportation systems. The Technology Transfer Program provides training, technical assistance, conferences and information resources in the areas of planning and policy, engineering, project development, infrastructure design and maintenance, safety, and the environment for motorized and non-motorized roadway traffic, aviation, and rail.

Laura Melendy
Director
Technology Transfer Program
Institute of Transportation Studies
University of California, Berkeley
1301 S 46th Street, Building 155
Richmond CA 94804

Upcoming Conferences
PHONE 510.665.3410
FAX 510.665.3454
E-MAIL techtransfer@berkeley.edu
WEB www.techtransfer.berkeley.edu

On the cover: HNTB developed a simulation model to illustrate the roadway conditions during nighttime construction work on the Golden Gate Bridge. In this visualization, workers reconfigured the lanes into one southbound lane and two northbound lanes, allowing contractors to close the three southbound lanes for nighttime construction. Photo courtesy of HNTB, www.hntb.com.

Tech Transfer newsletter is published quarterly and mailed to 18,500 readers in California and the United States with funds from the California Local Technical Assistance Program (LTAP).

The Technology Transfer Program, California’s LTAP Center, is part of a nationwide network of centers established by the Federal Highway Administration (FHWA) in cooperation with state transportation agencies. California’s LTAP Center is funded with additional support from the California Department of Transportation and is administered by the University of California, Institute of Transportation Studies, Technology Transfer Program.

The contents of this publication do not reflect the official views or policies of the State of California, the University of California, or the Federal Highway Administration, and do not constitute a standard, specification or regulation. No part of this publication should be construed as an endorsement for a commercial product, manufacturer, contractor or consultant. Any trade names or photos of commercial products appearing in this publication are for clarity only.

We grant reprint permission for most articles; contact Newsletter Editor Alyssa Sherman at alyssa@berkeley.edu or 510.665.6736.
Why simply talk about a project when you can show it? Traditionally, transportation planning projects such as streetscape improvements and access management adjustments were drawn as two-dimensional (2-D) renderings. Today, a host of technologies exist that enable transportation planners to create realistic and captivating previews of what their plans will look like for presentation to the public and use in the decision-making process. As these technologies gain popularity, agencies are looking for ways to incorporate their use with transportation planning.

WHAT IS VISUALIZATION?

Visualization is the practice of using pictures to convey the complex character of data or proposed projects and how they function. Traditional visualization methods include sketches, drawings, artist renderings, physical models and maps, simulated photos, and videos. Advances in computer technology provide a new group of three-dimensional (3-D) visualization techniques to work with, such as computer modeled images, interactive geographic information systems (GIS), photo manipulation, and computer simulation.

At the federal and regional levels, the use of visualization technologies is required. SAFETEA-LU, Section 6001, required both state Departments of Transportation (DOTs) and metropolitan planning organizations (MPOs) to use visualization technologies to the maximum extent possible in public involvement and planning programs. At the local level, many cities and counties have started to use new technologies to pitch potential future development scenarios to the public and to decision-makers.

CONSIDERATIONS FOR THE USE OF VISUALIZATIONS IN TRANSPORTATION PLANNING

Visualizations Enhance Communication With a Variety of Stakeholders

Visual techniques and products facilitate communication with a wide variety of stakeholders, including the general public, local government decision makers and regulatory agencies. Visualizations not only help transportation agencies convey information externally, but they also serve as powerful tools for gathering input and feedback.

The types of visualization products and the level of detail of the visuals should be appropriate for the intended audience. For instance, the visuals used to share information with partner agencies that are very familiar with transportation concepts may not need to be as polished as those used to present information at public meetings.

Evaluating the Effectiveness of Visualizations

Developing visualization products requires an investment of monetary and staff resources. To justify continued investment in these technologies, agencies seek ways to quantify the benefits generated from the use of visualizations. However, because visualizations are created as a means to share information and facilitate communication, the impacts are subjective in nature and thus quantitative analysis is inappropriate as a measure of effectiveness.

Instead, a more qualitative approach to evaluating the benefits of visualization products may be necessary. Qualitative evaluation techniques include distribution of surveys at public meetings to gauge audience reaction to the visuals, and collecting feedback from the staff members who presented the visualizations regarding how the visuals affected communication with the public.

The success of the visualizations should be evaluated separately from the success of the project itself. The public could oppose a project, but if the visualization helped the public understand the project more accurately, the visualization should be considered a success.

The decision to use internal visualization staff units as opposed to consultants to develop products is often made on a project-by-project basis. Factors include:

- Whether the transportation design work is performed internally or by a consultant. If a consultant is completing the design work, the visualization work for the project is typically added to the consultant’s contract.

- Turn-around time. Because visualization units typically operate with limited staff and available resources, consultants often complete complex projects with short schedules, because consultants have access to a larger staff and more equipment.

Hiring and Retaining Qualified Staff

Most local agencies and state DOTs do not have a visualization job classification category; instead, agencies typically classify visualization positions as either Information Technology (IT) positions or as transportation technician positions, which require civil engineering experience. These limited classifications make it difficult to recruit and hire employees who possess the appropriate skill sets to perform the job, such as those with graphic or visual design backgrounds. Visualization...
staff members need to understand transportation design concepts, but they also need to possess creativity.

In addition to making recruitment challenging, the job classification structure also limits staff advancement. The work experience gained in a visualization position is not typically relevant to other divisions within a transportation agency. For instance, visualization staff members who are classified as IT do not typically have the skills and qualifications to advance within the IT classification.

Training and Information Sharing
Transportation is one small component of the larger visualization industry. Much of the training and vendor-provided information is focused on the gaming industry. There is a strong interest in developing transportation-specific training and transportation community forums where staff can share best practices and software or technology recommendations.

COMMON CHALLENGES
Challenges that transportation agencies may encounter when implementing visualization technologies include the following:

➜ Devising appropriate visualization job titles and determining where visualization activities should be located organizationally

➜ Sustaining upper management buy-in

➜ Determining how to best disseminate data when the organization is data rich

➜ Ensuring that end users understand how to use and/or apply the visualizations created

➜ Evaluating the effectiveness of visualization tools

➜ Acquiring the skills necessary to develop visualizations, especially given the limited availability of in-house training opportunities

➜ Ensuring that visualization engages the public in planning processes

➜ Improving systems for determining which projects need visualization

➜ Creating standard approaches for developing and implementing visualization tools

The visualization resources that follow this article will serve as a useful reference as you seek solutions to address these challenges.

This article first appeared in the December 2009 issue of Centered on Service, the FHWA Resource Center newsletter and is reprinted here with permission. The original article is available at www.fhwa.dot.gov/resourcecenter/success/cosvol5iss4.cfm.

The visualizations in the footers of pages 3 (left side), 4, and 5 are reprinted courtesy of FHWA.

Photo and visualization by Dan Pesaturo, a student in the San José State University Master of Urban Planning program.
Visualization Resources

The following websites and publications provide useful information about how to create and use visualizations in transportation planning, design, and construction phases.

Federal Highway Administration
www.fhwa.dot.gov/planning/vip/index.htm
- FHWA’s Visualization in Planning website includes descriptions of best practices and many links for more detailed information.

Choosing Visualization for Transportation
http://choosingviz.org
- Communicates information about how transportation professionals can use visualization methods and techniques to facilitate and support public participation in transportation planning activities. Hunter College and Parsons Brinckerhoff developed this site with funding from the Federal Transit Administration.

Transportation Research Board’s Visualization in Transportation Committee
www.trbvis.org/MAIN/TRBVIS_HOME.html
- Includes resources, case studies, and information about upcoming webinars and events related to the use of visualizations and simulations in transportation.

Visualization’s Next Frontier
www.tfhrc.gov/pubrds/10janfeb/02.htm
Mark Taylor and Steve Moler, Public Roads, January/February 2010, pp. 2-11
- Describes how visualization can be used as a tool in the engineering and design phases of project development. Includes descriptions of many 3-D, 4-D, and dynamic (animated or real-time simulation) technological tools for design visualization.

The Work of Edward Tufte
www.edwardtufte.com

Visualization for Project Development: A Synthesis of Highway Practice (NCHRP Synthesis 361)
Charles L. Hixon III, Transportation Research Board, June 2006
- Comprehensively explores design visualization and the challenges the technology presents. Describes the results of a study regarding the ways in which organizations integrate visualization during preconstruction phases of project development.

Visualization in Transportation
cms.transportation.org/sites/design/docs/VisualizationGuideJuly2003.pdf
American Association of State Highway and Transportation Officials (AASHTO), July 2003
- Provides information on using visualization in the project development process, and a glossary of commonly used terms.

This photo illustrates a scenario from WorkZoneViz, a simulation program used to demonstrate work zone setup techniques in the Technology Transfer Program’s work zone safety training classes. Learn more about these workshops on page 14.
STAYING SAFE IN A HARD HAT

Hard hats are one of the most important pieces of safety equipment and are worn daily by millions because of the protection they provide. Although they are not currently a typical part of an inspection, maintenance, or replacement program, organizations requiring workers to wear head protection on the job should have a regular hard hat replacement program. Many workers will wear a hard hat well past its useful life without even knowing it.

The durable exterior of the rugged-looking hard hat can disguise the need for replacement. Hard hats must be replaced when they can no longer provide the protection intended, and sometimes this can be difficult to detect.

Hard hat life span may vary significantly based upon the conditions at each work site. Ultimately, an employer is responsible for defining a responsive and appropriate solution for hard hat service life issues.

USEFUL LIFE OF A HARD HAT

As a general guideline, most manufacturers recommend replacing hard hats every five years, regardless of outward appearance. If work conditions include exposure to higher temperature extremes, sunlight, or chemicals, hard hats should be replaced after two years of use. Some manufacturers recommend replacing the hard hat every 12 months, regardless of appearance. Careful review of each work site is critical to ensure that degradation of Personal Protection Equipment (PPE) is not being accelerated due to extreme work conditions.

HARD HAT COMPONENTS AND INSPECTION

There are two hard hat impact types: the ANSI Type I hard hat, intended to reduce the force of impacts resulting from a blow only to the top of the head, and the ANSI Type II, which reduces the force of blows received on the top, back and sides of the head, as well as off center. These hats consist of two components—shell and suspension—that work together as a system. Inspect both the shell and suspension on a regular basis.

Shell

Throughout history, many materials have been used to manufacture hard hat shells. Today, thermoplastics (polyethylene, polycarbonate, and others) and thermoset materials (fiber-glass-reinforced polyesters and phenolic-impregnated textiles) are commonly used to mold shells of industrial hard hats. These materials have proven durable, reliable, and lightweight while providing effective protection. Given proper care, these materials will provide a reasonable service life under normal workplace conditions.

However, these hard hats do not have an indefinite useful life, nor are they resistant to all physical and chemical exposures. Regardless of the material, shells should be inspected routinely for dents, cracks, gouges, and any damage due to impact, penetration, abrasions, rough treatments, or wear that might reduce the degree of protection originally provided. Degradation of thermoplastic material may be apparent when the shell becomes stiff, brittle, faded, dull in color, or exhibits a chalky appearance. A hard hat should be replaced at the first sign of any of these conditions.

Suspension

The hard hat suspension is just as important to worker safety as the shell. The suspension helps to absorb the shock of a blow, so it must be in good condition at all times. Like the shell, the suspension must be inspected regularly and replaced from time to time. Suspensions should be inspected closely for cracks, frayed or cut crown straps, torn headband or size adjustment slots, loss of pliability, missing components, or other signs of wear. Perspiration, hair oils, or normal wear may cause such conditions.
CARE AND MAINTENANCE

Hard hats will get dirty. The hat and suspension should be cleaned with mild soap and lukewarm water. Strong detergents, solvent chemicals, gasoline, and similar substances could affect the resistance and other properties of the hat over time. Contact the manufacturer if you have concerns.

Exposure to direct sunlight will affect the life of the shell. Although most manufacturers add an ultraviolet inhibitor to the shell material to protect against degradation caused by sunlight, all hard hats are susceptible to ultraviolet light damage. Workers should never store hard hats in the rear window or dashboard of a vehicle or in direct sunlight. This is the quickest way to degrade the shell material and reduce the product’s life.

GENERAL GUIDELINES

Employers should give all new employees a new, unused, and unexposed hard hat. Avoid reissuing cleaned hard hats. The cost of a hard hat is negligible when the potential for injury, lost time, health care costs, and liability are considered.

Hard hats are designed to protect you only once. If struck by a forcible blow of any magnitude, both the hard hat shell and the suspension should be replaced immediately, even if no damage is visible. A hard hat also should be replaced if the worker accidentally drops it from the height of a two story building or higher. Damage to the hat and suspension from the drop could seriously degrade the effectiveness of the product.

Assuming the hard hat has been stored in proper packaging—free from exposure to sunlight, chemicals, and extreme temperatures—the product service life would begin at the time the hard hat is put into service, not from the date of manufacture. Be sure to check with the manufacturer about product warranty because it may not allow for storage time. All hard hats have a molded-in date code (date of manufacture) per ANSI Z89.1 industrial head protection requirements. These date codes are usually located on the underside of the shell. Check and log this date prior to sending the hard hat into service to help track the age of the product.

Supplying and enforcing the use of hard hats is only half the job. Safety officials must implement and maintain a hard hat replacement program to ensure that hard hats are providing the level of protection intended. This is not only necessary, but well worth the effort when considering the implications of providing a hard hat that has outlived its usefulness. Check with the hard hat manufacturer for additional tips, guidelines, and warnings.

A FIELD TEST FOR YOUR HARD HAT

An employee or supervisor should use this test to determine possible degradation of polyethylene shells.

Compress the shell inward from the sides about 1 inch (2.5 cm) with both hands and then release the pressure without dropping the shell. The shell should quickly return to its original shape, exhibiting elasticity. Compare the elasticity of the sample with that of a new shell. If the sample does not exhibit elasticity similar to that of a new shell or if it cracks due to brittleness, it should be replaced immediately.

Adapted from an article by E.D. Bullard Company. This article previously appeared in the May 2009 issue of the Florida Technology Transfer Quarterly, the newsletter of the Florida Local Technical Assistance Program (LTAP) Center. Reprinted with permission.

AMERICAN NATIONAL STANDARD REQUIREMENTS FOR PROTECTIVE HEADWEAR

ANSI/ISEA Z89.1, the national standard for industrial head protection, was updated in January 2009 to include optional testing and marking features for head protection devices that reflect end-user preferences. Most notable among these are specific testing parameters and marking for products that have high-visibility properties.

In addition, the revised standard includes criteria for products that can be worn in the reverse position, which is preferred when performing some applications such as welding. Visit the National Work Zone Safety Information Clearinghouse website for more information: www.workzonesafety.org/research/record/9329
RESOURCES FROM THE TRANSPORTATION LIBRARY

COMPLETE STREETS

ABOUT COMPLETE STREETS

“Complete Streets” are roads that are designed to safely accommodate all users, including drivers, pedestrians, bicyclists, transit riders, and people with disabilities.

The appropriate design and construction solution for a given road will vary based on the project's context and location. Common Complete Street features include narrower travel lanes or fewer travel lanes to slow traffic, “road diets” that reallocate space on the road, bike lanes in which bicyclists may travel, sidewalks for pedestrians, and raised medians, crosswalks and pedestrian-activated crosswalk signals to make street crossing safer.

In California, statewide Complete Streets legislation (AB 1358) was signed into law in September 2008 requiring that, when updating general plans, cities and counties include policies to ensure that roads meet the needs of all users. The law will take effect in January of 2011.

The resources on these pages provide detailed information about Complete Streets and how to implement California's new requirements.

— Alyssa Sherman

WEB SITES

National Complete Streets Coalition
www.completestreets.org

➢ The National Complete Streets Coalition is comprised of planning organizations, advocacy groups, consultants, and local governments interested in the implementation of the Complete Streets concept nationwide. They provide information and news about Complete Streets initiatives, as well as resources to help people host their own community workshops about Complete Streets. The website also tracks pertinent federal policies including American Recovery and Reinvestment Act of 2009 (ARRA) projects and funds.

Complete Streets in California
California Department of Transportation – Division of Transportation Planning
www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html

➢ The main portal for information about Caltrans’ Complete Streets projects and guidelines, including implementation of Deputy Directive 64.

Complete Streets: Talking Points
Planning for Healthy Spaces – Public Health Law and Policy
www.phlpnet.org/healthy-planning/products/complete-streets-talking

➢ A brief introduction to the Complete Streets model and how different aspects of the plan can improve the health and safety of different user groups, such as pedestrians or bicyclists.
REPORTS, ARTICLES AND CONFERENCE PROCEEDINGS

Complete Streets: We Can Get There from Here
→ Provides an introduction and overview of the Complete Streets movement, as well as some points to consider before implementing changes in your location.

Retrofitting Urban Arterials into Complete Streets
→ Examines different issues related to retrofitting existing arterials into Complete Streets, addressing the tension inherent between the need for traffic capacity and speed and making streets safe for bicyclists and pedestrians as well.

Brave New Nonmotorized World
Jay Walljasper, Planning, v. 74, n.11, December 2008, pp. 20-23
→ Provides an analysis of how bicycling and pedestrian retrofits and improvements in European cities provide case studies and examples for similar projects in American cities.

Planning Complete Streets for an Aging America
Jana Lynot et al., AARP Public Policy Institute, 2009
assets.aarp.org/rgcenter/il/2009_02_streets.pdf
→ Discusses how the Complete Streets agenda impacts and benefits mobility for the aging population. Interdisciplinary research examines how the Complete Streets program will affect older drivers and pedestrians, examining design recommendations to improve safety for travelers of any age.

ORGANIZATIONS

Here are other organizations that are interested in and working toward implementing Complete Streets nationwide.

American Planning Association
www.planning.org

American Public Transportation Association
www.apta.com

American Society of Landscape Architects
www.asla.org

Association of Pedestrian and Bicycle Professionals
www.apbp.org

Safe Routes to School National Partnership
www.saferroutespartnership.org

Smart Growth America
www.smartgrowthamerica.org

ABOUT THE INSTITUTE OF TRANSPORTATION STUDIES LIBRARY

→ Employees of California public sector transportation agencies at the local, state, and regional levels, including federal agencies located in California, are eligible to request anything in the transportation library’s catalog for free. The library will even provide up to 50 pages of photocopies of articles from journals, trade magazines, or conference reports, or scan and e-mail the requested material.

We encourage public agency employees to contact the Library for reference services and loans. Specialized services are provided free to public agency employees with funding from the California Local Technical Assistance Program (LTAP). See library.its.berkeley.edu for details, or contact:

Kendra Levine
Reference and Outreach Librarian
Transportation Library
Institute of Transportation Studies
University of California, Berkeley
412 McLaughlin Hall
Berkeley, CA 94720-1720
PHONE 510.642.3604
FAX 510.642.9180
EMAIL itslib@berkeley.edu
All requests must include your name, job title, agency name, mailing address, and, if requesting material, the title and call number.

NEW IN THE MULTIMEDIA TRAINING LIBRARY

California public agencies are eligible for free access to multimedia resources through Local Technical Assistance Program funding. Browse our newest selection of material below and request a resource at www.techtransfer.berkeley.edu/videos.

Urban Forest Maintenance
→ Basic Training for Ground Operations in Tree Care
Tree Care Industry Association and International Society of Arboriculture (DV-771).

→ Basic Training for Tree Climbers
Tree Care Industry Association and International Society of Arboriculture (DV-772).

Paving and Work Zone Safety
→ A DVD Guide to the Safe Handling of Hot Asphalt
Asphalt Institute (DV-764).

→ Work Zones – Safety First
American Public Works Association (CD-770).

→ Avoiding Runovers & Backovers
American Road & Transportation Builders Association (DV-761).

Planning and Finance
→ Innovative Funding – Getting to the End of the Rainbow
American Planning Association (CD-767).

→ Balancing the Land-Use/Transportation Equation
American Planning Association (DV-766).
CALIFORNIA’S TRANSPORTATION SYSTEM IN PHOTOS

In a state as large and varied as California, even individuals who work in the same field are bound to see different things. As transportation professionals working across the state, we can find beauty and artistry in our work and in the transportation system as a whole each and every day. In the Fall 2008/Winter 2009 issue of Tech Transfer, we solicited photographs depicting our readers’ perspectives on transportation in California. It was difficult to choose winners from the wide field of excellent photos that readers submitted, but we think you will agree that the four winning photos depicted on these pages are stunning.

FIRST PLACE | BEACON

BOB HULL
Project Manager, Caltrans District 6, Clovis, CA

Taken in April of 2009, this photo depicts a barricade-mounted flashing beacon that was set up during construction of the State Route 180 freeway on the eastern side of Fresno. As part of this project, Caltrans is constructing a new multi-lane freeway to facilitate better traffic flow between the eastern Fresno County communities and the Kings Canyon and Sequoia National Parks.

SECOND PLACE | DEATH VALLEY

BRAD LARSON
Transportation Engineer, Caltrans District 9, Bishop, CA

This photo was taken in Death Valley National Park on State Route 190. Death Valley is one of the hottest, driest, and lowest places on earth, which makes placement and maintenance of pavement difficult. This highway is surrounded by a desert of streaming sand dunes, snow-capped mountains, multicolored rock layers, water-fluted canyons, and three-million-acres of wilderness.
HONORABLE MENTION | DOWEL RODS

BOB HULL
Project Manager, Caltrans District 6, Clovis, CA

This photo depicts dowel rods positioned prior to the placement of Portland Cement Concrete (PCC) pavement on State Route 180 east of Fresno. PCC consists of a concrete slab that is typically supported by a granular or stabilized base, and a subbase. Dowel bars are placed to ensure proper load transfer across transverse joints.

THIRD PLACE | DRAINAGE SYSTEM INLET

JIM MILLS
Civil Engineer, Caltrans District 5 Hydraulics, Atascadero, CA

The abstract object pictured here is the inlet to Drainage System Number 55, which is under construction on State Route 46 near Paso Robles, California. State Route 46, which is mostly a two-lane road, crosses the Pacific Coast Ranges and connects State Route 1 in Cambria, U.S. Route 101 in Paso Robles, and Interstate 5 and State Route 99 in the San Joaquin Valley.
When the California Office of Traffic Safety (OTS) recognized a need to improve pedestrian safety in California, they envisioned an innovative new program to evaluate pedestrian conditions in municipalities and recommend improvements. Their vision led to the development of a Technical Guide For Conducting Pedestrian Safety Assessments For California Cities and deployment of the Pedestrian Safety Assessment program, which kicked off in May of 2008 and is now a successful and effective means of helping municipalities create pedestrian-friendly environments in California.

Pedestrian Safety Assessments are available to cities in California free of charge, thanks to funding from OTS, through the National Highway Traffic Safety Administration (NHTSA). The Technology Transfer Program developed and administers the on-going program. Since May of 2008, the Technology Transfer Program has conducted 21 assessments in California cities, and is currently accepting requests for assessments to take place starting in October of 2010 pending new funding from OTS.

HOW THE ASSESSMENTS WORK

Once an agency requests an assessment, the Technology Transfer Program assigns two pedestrian safety expert evaluators to the city. The evaluators first collect and analyze data regarding pedestrian conditions in the city, then conduct a walking audit and create a technical report identifying current conditions and opportunity areas in the city.

Assess Conditions in the City
Before visiting the city, the evaluators collect information including traffic volumes, pedestrian volumes, collision histories and reports, transit information, and city planning and engineering documents. Using this data, the evaluators analyze the rate and frequency of pedestrian collisions and determine how the overall pedestrian safety picture compares with that of other California cities of similar size.

Next, the evaluators conduct a survey with city staff via phone to discuss the city’s General Plan, Pedestrian Master Plan, and pedestrian safety programs, activities, and policies. Then the evaluators benchmark how the city’s pedestrian safety activities measure against best practices and develop recommendations to enhance the city’s practices.

Conduct a Walking Audit
After completing the pre-visit evaluation, the evaluators visit the city. First, they present the benchmarking results to city staff. Next, the evaluators and city staff conduct a walking audit of sites that the city and evaluators select. During the walking audit, the evaluators observe positive practices and note opportunity areas, and city participants provide background information regarding specific locations. The evaluators then develop initial recommendations for site-specific and citywide pedestrian improvements, which they share during a debriefing session.

Create a Technical Report
With the information and observations they collected, the evaluators prepare a technical report for the city describing their findings and recommendations. The report includes resources, reference documents, and information about grants that may be available to fund implementation of recommendations.

WHO’S ELIGIBLE?

Any agency within a city or community in California may request a Pedestrian Safety Assessment. However, the number of assessments performed each year is limited by funding from OTS. Priority is given to applicants with significant pedestrian safety issues based on OTS collision rankings. More detailed information about eligibility is available on our website.

AWARDS AND RECOGNITION

Several transportation industry associations have issued awards to recognize the Pedestrian Safety Assessment program for excellence, including the Institute of Transportation Engineers, and the California Chapter and Northern California Section of the American Planning Association.

READ MORE

For more information about this innovative program, and the link to the PDF version of the Technical Guide For Conducting Pedestrian Safety Assessments For California Cities, please visit www.techtransfer.berkeley.edu/pedsafety.

Thank you to Pedestrian Safety Evaluators Meghan Mitman and Matthew Ridgway for their contributions to this article.
**UPCOMING CONFERENCES**

**FIRST INTERNATIONAL CONFERENCE ON PAVEMENT PRESERVATION**

April 13-15, 2010
Newport Beach, California

Plan now to attend the First International Conference on Pavement Preservation (ICPP). The ICPP will bring together researchers and experts working in the field of pavement preservation to exchange ideas, share best practices, and discuss critical issues and concerns impacting the implementation and success of pavement preservation theory and practice.

International experts will present more than 40 peer-reviewed papers at this not-to-be-missed event. Highlights will include case studies of pavement preservation from transportation agencies, industry, and international organizations. Additionally, an exhibit hall will be available at the conference.

Presentations will be delivered on the following topics:
- Benefits of pavement preservation
- Integrating pavement preservation with pavement management
- Pavement preservation treatments for flexible pavements
- Pavement preservation treatments for rigid pavements
- Strategy selection
- Funding pavement preservation
- Promoting pavement preservation to the public and our elected officials

Who should attend:
- Consulting engineers
- Pavement producers, contractors, and material suppliers
- State and Federal Department of Transportation (DOT) engineers
- Local agency public works engineers and officials
- Researchers and academics

The conference sponsors are the California Department of Transportation (Caltrans), the Federal Highway Administration (FHWA), and the Foundation for Pavement Preservation (FP2).

For preliminary conference agenda and registration information, visit www.pavementpreservation.org/icpp.

**THE 2010 RAIL CORRIDOR SAFETY CONFERENCE**

Working together for mobility and safety.

June 22-24, 2010
Tacoma, Washington

The 2010 Rail Corridor Safety Conference will focus on the latest developments in rail corridor safety issues, highway-rail grade-crossing safety improvements, and planning and construction around rails by local agencies. This conference brings together all of the parties working to improve mobility and safety in rail transportation corridors: state and federal regulators; cities, counties, and transit agencies; heavy rail, light rail and short line operators. This is an important venue to meet the experts, debate the issues, and network with peers, colleagues and partnering agencies.

Conference topics will include:
- Rail safety, security, and preparedness
- Grade crossing design and practices
- Crossing diagnostics
- Pedestrian crossings and trespass
- Multimodal integration (shared corridors)
- Local multi-agency project planning and development
- State and regional coordination of long-term planning for safety
- Federal regulations
- Funding
- Safety education for the general public and for special populations
- Station area planning and design of transit oriented developments (TODs)
- Quiet Zones
- High speed rail

Who should attend:
- City and county engineers, public works directors, and managers responsible for roadways with at-grade rail crossings
- Caltrans or other state Departments of Transportation (DOT) public utility staff with responsibility for rail or highway oversight
- Heavy and light rail operators, including freight, commuter, and passenger lines
- Local elected officials concerned about rail intersection safety
- Rail, highway, or traffic engineering consultants
- Academics and researchers
- Suppliers of crossing equipment

The conference is co-organized by the Federal Railroad Administration (FRA) and the University of California, Berkeley Institute of Transportation Studies.

For more information or to register, visit www.techtransfer.berkeley.edu/railroad.
TRAINING YOU CAN USE

CORE TRAINING FOR RESIDENT ENGINEERS

Registration is now open for the Resident Engineer’s Academy. If you have ever considered registering for this program, now is the time.

The Resident Engineer’s Academy is a very low-cost training program that packs wide-ranging information about all aspects of a resident engineer’s daily responsibilities into just three-and-a-half days. Training topics include project management, contract administration, finances and funding, risk management, and federal and state labor rules.

We provide this training in conjunction with the Caltrans Division of Local Assistance. Sessions include hands-on exercises, presentations by Caltrans program managers and subject matter experts, and group discussions.

Upcoming Sessions
February 23-26 • San Diego
March 16-19 • Redding
April 13-16 • San Luis Obispo
May 11-14 • Richmond

Register now at www.techtransfer.berkeley.edu/reacademy.

TECH TRANSFER’S NEW WORK ZONE SAFETY TRAINING

For many years, the Technology Transfer Program has been a go-to source for Cal-OSHA compliant work zone safety training and flagger safety training in California. We are pleased to announce that, in addition to our two-day work zone safety training course and four-hour flagging safety course, we now offer a one-day class called Traffic Control for Safe Work Zones (TS-10), which is available with four different options:

**Rural Areas (with Flagger Cards)**
- Describes traffic control plans for roadway situations on roads with low traffic volumes
- Provides extensive instruction on proper flagging procedures
- Issues Flagger Cards for trainees
- Shows legal video on work zone tort liability, with brief instruction

**Urban Areas**
- Describes traffic control plans for roadway situations on roads with high traffic volumes
- Provides basic instruction on proper flagging procedures
- Shows legal video on work zone tort liability with detailed accompanying presentation

**Urban Areas and Rural Areas**
- Describes traffic control plans for roadway situations on roads with low and high traffic volumes
- Shows video on proper flagging procedures
- Shows legal video on work zone tort liability with detailed accompanying presentation

All training courses are available to cities, counties, state and federal agencies, utility companies, and private contractors. Each course costs $3,495, total, for up to 40 students. For more information, visit www.techtransfer.berkeley.edu/workzones.
INTRODUCING THE FIRST CLASS OF TRAFFIC SIGNAL ENGINEERING ACADEMY GRADUATES

The Traffic Signal Engineering Academy is a formal curriculum designed to help transportation professionals enter or advance in the field of traffic signal operations. The Academy guides you through a series of courses that meet one to three times each. Upon completing and passing a final exam, the Institute of Transportation Studies at UC Berkeley will award you an Academy Graduation Certificate. In 2009, the first graduates of Tech Transfer’s new Traffic Signal Engineering Academy finished the program and passed the final exam. We congratulate the following students:

- Brandon A. Broussard
  Yamabe & Horn Engineering, Fresno, CA
- Yohanes Makmur
  Yamabe & Horn Engineering, Fresno, CA
- Edward B. Moore
  City of Napa Public Works Department
- Eddie Tsui
  San Francisco Municipal Transportation Agency

We are offering the entire line-up of Traffic Signal Engineering Academy classes this May in Los Angeles. See page 16 of this newsletter for the Academy schedule and register for one—or all—of these classes today at www.techtransfer.berkeley.edu/trafficsignals.

CONGRATULATIONS, TED

On December 1, 2009, Dr. Ted Chira-Chavala retired after working at the University of California, Berkeley Institute of Transportation Studies (ITS) for more than 20 years. For the most recent 10 years, Ted served as Manager of Instructional Development at the Technology Transfer Program. In that capacity, he developed and maintained Tech Transfer’s core training courses and curricula, managed traffic safety programs including the Safety in Work Zones and Traffic Safety Evaluation programs, and was instrumental in creating and producing the highly-acclaimed Pedestrian Safety Assessment program.

Prior to joining Tech Transfer’s staff, Ted pursued his interests in traffic safety, transit, and traffic engineering as an ITS faculty member. He also served as lead instructor for the popular Fundamentals of Traffic Engineering (TE-01) course before joining Tech Transfer’s staff full-time in 2000. Prior to joining the University, Ted worked for the Transportation Research Board in Washington, DC.

Dr. Ted Chira-Chavala has left a profound legacy on the training and safety programs at Tech Transfer and a lasting impact on the students he educated over the years. He will be missed personally and professionally by the numerous students, faculty, instructors, colleagues and friends he worked with at the University. We wish Ted all the best in his well-deserved retirement.
TRAFFIC SIGNALS

Interested in enrolling in the Traffic Signal Engineering Academy?
Get started with a course listed below. The entire line-up of Academy classes is offered this Spring in Southern California. Learn more at www.techtransfer.berkeley.edu/trafficsignals.

Traffic Flow Principles for Practitioners
TE-27 $175/$245 May 3 Los Angeles
Traffic Signal Design
TE-02 $425/$695 May 4-6 Los Angeles
Signal Timing and Operations
TE-04 $225/$325 May 10-11 Los Angeles
Synchro and SimTraffic
TE-13 $325/$475 May 12-13 Los Angeles
Type 170 Traffic Signal Controller
TE-08 $325/$475 May 17-18 Los Angeles
Type 2070 Traffic Signal Controller
TE-09 $325/$475 May 19-20 Los Angeles
Advanced Traffic Signal Operations
TE-10 $325/$475 May 24-25 Los Angeles
Construction Inspection of Traffic Signals
PD-02 $225/$325 May 26-27 Los Angeles

TRAFFIC ENGINEERING AND OPERATIONS

Annual MUTCD Workshop
TE-06 $125/$195 March 9 Fresno
TE-06 $125/$195 May 5 San Diego
Fundamentals of Traffic Engineering
TE-01 $595/$895 March 8-12 Sacramento
Traffic Operations and Highway Capacity Analysis
TE-05 $345/$495 April 27-28 Costa Mesa

INFRASSTRUCTURE DESIGN

Design, Implementation, and Operation of Bicycle Facilities
TE-19 $295/$425 March 17-18 Los Angeles
Traffic Calming: Strategies That Work
PL-04 $395/$525 April 20-21 Sacramento

PAVEMENT DESIGN AND MAINTENANCE

Asphalt Pavement Maintenance for Local Agencies
IDM-04 $125/$195 Feb 24 Fresno

PLANNING, FUNDING, AND ENVIRONMENT

Air Quality Conformity for California
PL-05 $125/$195 April 7 Fresno
Managing Transportation and Land Use Interactions
PL-08 $275/$395 May 18-19 Richmond

PROJECT DEVELOPMENT, MANAGEMENT AND COMPLIANCE

Fundamentals of Inspection Practice
PD-01 $225/$325 April 6-7 Stockton
Applying Systems Engineering Principles to ITS Projects in California
TE-21 FREE March 10-11 Richmond
TE-21 FREE June 7-8 Costa Mesa
TE-21 FREE June 9-10 San Diego
Local Assistance Resident Engineer’s Academy
PD-04 $295/$495 Feb 23-26 San Diego
PD-04 $295/$495 March 16-19 Redding
PD-04 $295/$495 April 13-16 San Luis Obispo
PD-04 $295/$495 May 11-14 Richmond
Management Skills for Maintenance Supervisors
PD-14 $225/$325 March 2-3 Bakersfield
Project Management for Transportation Engineers
PD-05 $295/$425 April 13-14 Costa Mesa

FEDERAL-AID PROJECT DEVELOPMENT: A FIVE COURSE SERIES

Getting Your Federal-Aid Project Started
PD-08 FREE March 11-12 San Diego
Federal Procedural Requirements for Environmental Analysis / NEPA
PD-09 FREE March 17-21 Redding
Federal-Aid Project Development: Design to Construction
PD-10 FREE May 3-7 Bakersfield
Federal Rules for Contract Administration and Project Completion
PD-11 FREE May 10-14 San Diego

Sessions are scheduled across California throughout the year. For more information, visit: www.techtransfer.berkeley.edu/federal-aid-series

To register:

• Additional course and registration information: www.techtransfer.berkeley.edu/training
• Course content related questions: training_info@techtransfer.berkeley.edu or 510.665.3410
• Registration related questions: registrar@techtransfer.berkeley.edu or 510.665.3466
• Mailing list changes: www.techtransfer.berkeley.edu/subscribe or 510.665.3466

Fees for most courses are two-tiered: the lower rate is for California public agencies and is subsidized by the Cooperative Training Assistance Program (CTAP); the higher rate is for all others.