Vol. 21/ No. 2/ Summer 2007

RoadTalk TTAP

TATE Overhaul

The Tennessee Academy for Transportation Engineering (TATE) was established in 1998 to fulfill a need for continuing education for engineers, planners, designers, and technicians within the field of transportation. The TATE program offers a series of short courses and workshops addressing various topics related to the design, operation, and maintenance of transportation facilities, with a focus on roads and streets. To date, 22 persons have completed the program.

The present TATE curriculum includes two required core courses: Traffic Engineering I (TE I) and Traffic Engineering II (TE II). Each of these courses lasts for three days. Sparing three days from work is difficult for many potential attendees, especially those not intending to fulfill the TATE curriculum. The three-day format is also a challenge for TTAP, as we can only afford to offer the classes once a year and at a single location.

In recognition of these logistical problems, TTAP has decided to split TE I and TE II into six 1-day classes. Each class will cover specific traffic engineering topic areas. The working titles for the new classes are as follows:

- Traffic Flow Principles
- Traffic Measurements
- Fundamentals of Traffic Control
- Roadway Design Principles
- Highway Safety Analysis
- Introduction to Highway Capacity Analysis

The six new classes will be new **core requirements** for those entering the TATE certificate. TTAP hopes to offer each one-day class on a more frequent basis than the old TE I and TE II. The shorter duration and increased frequency should make it easier for TATE participants to attend. At the same time, we are revising the TATE curriculum. When these revisions are completed, we will publicize them through *RoadTalk* and our website. We do not envision that the changes will cause any problems for current TATE participants.

TTAP will begin scheduling the new core courses this fall and winter. Please watch out for the announcements. If you have any questions, please contact TTAP (800-252-7623) or check our website http://ctr.utk.edu/ttap.

Emmett Wood (left), Bowling Green KY Public Works Director, presented Jeff Lashlee (right), Assistant City Engineer for Bowling Green KY, the Tennessee Academy for Transportation Engineering (TATE) certificate. Jeff is our most recent recipient of the TATE Certificate.

RoadTalk is a publication of the Tennessee Transportation Assistance Program (TTAP). TTAP is part of a nationwide Local Technical Assistance Program (LTAP) financed jointly by the Federal Highway Administration (FHWA) and Tennessee Department of Transportation (TDOT). Its purpose is to translate into understandable terms the latest state-of-the-art technologies in the areas of roads, bridges, and public transportation to local highway and transportation personnel.

The views, opinions, and recommendations contained within this newsletter are those of the authors and do not necessarily reflect the views of FHWA and TDOT.

From the Director

I always seem to begin my columns with some comment on the weather. I realized this as I sat down to write this morning, and I thought about why I have this habit. For one thing, it's a good icebreaker. But, in a deeper sense, I guess it's because so much of what we have to do to keep our roads and streets in good repair has to do with the weather. Mother Nature causes a great deal of the deterioration that roads experience, plus we have to plan our work activities with the weather in mind.

It may surprise you all to know that I spend a great deal of my non-TTAP time working, not with highways, but with railroad track. I do a lot of training and instruction related to railroads, and, for the past decade, I've maintained a 14 mile railroad line during my "spare" time. When it comes to maintenance, there are a fair number of similarities between railroads and highways. In fact, a few of my stories in *RoadTalk* have actually been based on railroad experiences. I guess my point is that the state of the weather–hot, freezing, mild, rainy, dry–has as much effect on me as it does to you. I suppose that's why I talk about it so much.

It's been a busy summer here at TTAP. Our Safety Circuit Rider program is in full swing. We've ranged across the state performing technical assistance activities. We've even done some training, which is unusual for us in the summer season. It looks like things may get even busier in the months to come, as we've been asked to help out with some planning related activities. In addition, thanks to a grant from Federal Highway Administration, we'll be conducting some road safety audits on local roads and also providing training. If you're interested in this highly regarded safety technique, give us a call!

I hope all of you have had a productive summer. As always, please feel free to contact TTAP for technical assistance, training, or information. We look forward to serving you.

Chattanooga Road Project is Successful in a "Roundabout" Way

By Alan Huffman, Neel-Schaffer, Inc.

Sometimes the solution to an engineering challenge comes in a roundabout way, by approaching the problem from a new and innovative angle. Such was the case with the Chickamauga Lock and Dam road relocation project in Chattanooga. The $6.5 million project, completed in December 2006, involved relocating a roadway to make way for a new lock and dam along the Tennessee River navigation system. The existing lock, one of 10 in the system owned by the Tennessee Valley Authority, dated to 1940 and was too small to efficiently handle much of today's river traffic. The lock is being replaced due to concrete growth caused by an alkali reaction between the cement and the rock aggregate.

After deciding to build a new lock adjacent to the old one, the U.S. Army Corps of Engineers contracted with Neel-Schaffer, Inc., to design the relocation of an adjacent street network and related utilities to provide for staging the lock's construction. That is where the roundabout engineering came in. The new design called for approximately 2,700 feet of new roadway, two intersections, retaining walls, lighting and an access point to the North Chickamauga Creek Greenway for the Chickamauga project.

However, there were several complicating factors. Space was tight and the project schedule had to accommodate the construction schedule of the lock and dam. The Corps also wanted to accommodate the City of

Two new multilane roundabouts accommodate the intersection of Lake Resort Road, North Access Road, and Tennessee State Route 153 in Chattanooga. This design alleviates congestion while accommodating for the replacement of the lock at Chickamauga Dam, shown in the background.

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New pavement markings taken from the draft 2008 edition of the MUTCD offer guidance to unfamiliar drivers before entering the new multilane roundabouts.

Chattanooga's desire for the new road system to blend with the greenway, an important multi-use recreational area, and incorporate roundabouts to route traffic through the new intersections.

The completed project, said City Engineer John Van Winkle, "works great. We knew the roundabouts would work better, but they actually exceeded our expectations." Van Winkle said the city had installed roundabouts before, but never one with two lanes, such as the ones proposed for the Chickamauga relocation project. Since the opening of the new roundabouts, commuters no longer have to endure five to 10 minute delays at the intersection. "Traffic just flows," he said.

Modern roundabouts, or circular intersections, have been used in Europe and Australia for decades, but have only caught on in the United States during the past 10 years or so. Most in use in the U.S. are single-lane, with single-lane approaches, which are better suited to low-volume intersections. Multi-lane roundabouts are sometimes used in higher volume intersections, but have gotten mixed reviews because they often lead to driver confusion. The design of the Chickamauga roundabouts therefore required some engineering finesse.

"Ultimately, the project team settled on a design for two consecutive multi-lane roundabouts instead of two traditional intersections," said Joe Deering, Neel-Schaffer's project manager. "To ensure that these roundabouts would work efficiently, we worked with the City of Chattanooga Traffic Engineering Division to analyze and develop roundabout designs that took advantage of the latest research." The design team used up-to-date guidance from the draft 2008 update to the Manual on Uniform Traffic Control Devices and the New

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York Department of Transportation to develop a pavement marking and sign plan to help drivers navigate the roundabouts.

This project's design illustrates that multi-lane roundabouts can work efficiently in high-traffic situations and accommodate American driving habits. As an added benefit, the Chickamauga roundabouts will enable engineers to evaluate congestion and safety data and monitor the project's new pavement marking and sign plan prior to the release of the 2008 update of the Manual on Uniform Traffic Control Devices.

This innovative design approach has resulted in some key benefits to road users and project stakeholders alike. First and foremost was the benefit for traffic control. At traditional intersections – those with stop signs or traffic signals, there is a potential for severe collisions because vehicles travel at different angles, sometimes at high speeds. With roundabouts, the potential for serious crashes is reduced because vehicles travel in the same general direction, and collisions that do occur typically involve vehicles traveling at low speeds (15-20 mph).

Roundabouts also allow traffic to continually move through the intersection, unlike intersections with signals, which require traffic from each direction to periodically stop completely. For intersections with a large number of vehicles turning, roundabouts are usually more efficient in keeping traffic moving, thereby reducing traffic congestion. The Chickamauga roundabouts are expected to reduce congestion at least 35 percent over traditional signalized intersections.

A significant but less obvious potential benefit involves air quality, which is improved because vehicles pass through roundabouts without stopping to wait for traffic signals to change. Pollution levels at intersections decrease because the incidence of idling motor vehicles is reduced.

The Chickamauga project also has important aesthetic and recreational benefits for the City of Chattanooga because it encompasses the area where North Chickamauga Creek empties into the Tennessee River, which is the northern terminus of Chattanooga's multi-use greenway. The new bridge over the creek was designed to allow the new greenway to pass beneath it, eliminating the need for pedestrians to cross the street.

To view a WDEF-TV news segment on the roundabouts, visit http://www.chattanooga.gov/public_works/70_3232.htm.

Reviewing Reviews: A Powerful Tool

reprinted with permission from Nevada Milepost, Nevada's Technology Transfer Quarterly, Spring 2007, Vol. 17, No. 1

Many supervisors hate giving out performance reviews. The process has a nasty reputation, because employees often hate getting any kind of criticism, no matter how diplomatically delivered. And bosses often lack the courage necessary to tell people the truth about how they are doing in their job.

But performance appraisals are an important tool to developing a top-notch staff; therefore, a vital part of managing a team. So supervisors need to think about how to improve the review process.

Get in the habit of offering praise and weeding out under-performers by following these guidelines:

- Appraisals must be based on quantitative measurements. Ideally, these criteria should be developed with the input of employees, as workers are less apt to identify and accept quotas and other measurements handed down from on high.
- Qualitative measurements should be a secondary element of any review. Things like whether a team member takes initiative, how he works with the group, etc.
- Performance reviews should be conducted on a regularly scheduled basis. New hires should receive reviews more frequently. Established employees should be reviewed quarterly.
- Bosses should take time to prepare and conduct reviews thoughtfully. It isn't time wasted, but time well invested.
- Finally, supervisors should remember that when done with enthusiasm and optimism, performance appraisals are a powerful motivating tool.

Education and training opportunities are available through the University of Tennessee Center for Transportation Research (CTR), Southeast Transportation Center (STC), and Tennessee Transportation Assistance Program (TTAP). This listing of courses currently available includes both TTAP and TATE courses that are offered in conjunction with the University of Tennessee Department of Civil and Environmental Engineering and the Tennessee Section of the Institute of Transportation Engineers. Local roadway departments can benefit from all of the workshops. Because of this, we ask that you please share this listing with others who might be interested in our workshops. TTAP is always eager to meet your research and training needs. If you have a special course in mind or would like a course held on site especially for your employees, please contact Wilma Wilson at 1-800-252-ROAD.

***CEU and PDH credit hours available.**

Workshop	Date/s	Locations	Instructor/s
Signs & Pavement Markings	Sep 12	Jackson	Matt Catt
Work Zone Traffic Control/Flagging	Sep 17	Jackson	Frank Brewer
Work Zone Traffic Control/Flagging	Sep 19	Nashville	Frank Brewer
Work Zone Traffic Control/Flagging	Sep 20	Chattanooga	Frank Brewer
~~TMOST(Tractor/Mower Operator Safety Training)~~	~~Oct 1~~	~~Jackson~~	~~Jim Green~~
~~TMOST(Tractor/Mower Operator Safety Training)~~	~~Oct 2~~	~~Nashville~~	~~Jim Green~~
~~TMOST(Tractor/Mower Operator Safety Training)~~	~~Oct 3~~	~~Knoxville~~	~~Jim Green~~
~~TMOST(Tractor/Mower Operator Safety Training)~~	~~Oct 4~~	~~Chattanooga~~	~~Jim Green~~
GeoTech Design/Earthwork: What makes a Good Sub-grade	Oct 4-5	Nashville	Eric Drumm
Design of At-Grade Intersections	Oct 15	Knoxville	Alan Childers
Drainage Rehabilitation	Oct 30	Jackson	Dave Clarke
2-Lane Geometric Design	Nov 13	Nashville	Dave Clarke
Pavement Rehabilitation	Nov 27	Nashville	Dave Clarke

REGISTRATIONS CLOSED

An in-house Work Zone Flagging course for S and W Contracting was conducted in Murfreesboro in August, 2007. Several attendees are shown working with a work zone setup example during one of the tabletop exercises. David Franks, one of the attendees and an accomplished baker, created a cake for the class to enjoy. As you can see it includes a Traffic Signal, a roadway, and a traffic cone. This was one of the most enjoyable workshops TTAP has conducted.

Workshop in the City of Morristown, TN

by Frank Brewer

TTAP conducted a review workshop on "Trench Safety" and "Confined Space Entry, Competent Person" for the City of Morristown on June 22, 2007. These two workshops had previously been conducted for Morristown a year earlier. For this new session, Morristown created a trench and a manhole vault for demonstrative purposes which made the workshop very effective for those attending. This was on the site of their proposed new public works building. They hope to keep the manhole for future training purposes.

Walter Idol, safety and emergency response consultant for the UT Center for Industrial Services, was the instructor. The morning was allocated for a review lecture and question and answer session. After lunch we assembled in the field for the hands-on portion, starting with the trench.

With an open trench in place, the Morristown trench crew went to work. Walter, using one of Morristown's trench boxes, discussed the fine points of inspection of the box, its hoisting harness, proper handling techniques, and placement. Once in place, additional questions were generated.

Following the trench demonstration, we went to the manhole and things got interesting. We used Morristown's equipment which ranged from air quality monitors to lifting tripod and rigging. Walter then brought out his wonderful toys and was able to demonstrate some alternatives to confined space recovery systems.

Being able to take "book learning" directly to the field provides a multi-dimensional approach to training. The attendees are able see a real application which often triggers questions that you do not get in the classroom setting alone. The "why's" and "why not's" become logical and stay with you. Alternatives make more sense. With their own equipment at hand, the attendees were able to ask specific questions that related to their equipment. Walter was then able to demonstrate, using that same equipment, and answer those questions directly.

TTAP was very pleased to fulfill the request from Reese Conway of Morristown Public Works. Safety of all our public workers is part of our mission. If you are interested in these titles or in any other transportation related topics, please contact TTAP. Dave, Matt or I will always be available to assist whenever we can.

Road TTAP Talk

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TALK TO TTAP

We are always looking for your comments, ideas and suggestions to help make the TTAP Program more useful to you. Please fill out and fax the form below to TTAP at (865) 974-3889 or mail to TTAP; Suite 309 Conference Center Building, Knoxville, TN 37996-4133.

1. Please send me more information on the following articles mentioned in this newsletter.

_____
_____
_____

2. Please list any additional training workshops you would be interested in attending.

_____
_____
_____

3. Please list topics for videos you would like TTAP to obtain.

_____
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_____

4. Please list any other ideas or suggestions on how TTAP could assist you.

_____
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5. Please list your name and organization to verify for TTAP's mailing list.

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Are you currently on TTAP's mailing list?
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