



ROADTALK

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THE UNIVERSITY OF TENNESSEE 

Great Year for Traffic Sign Grant Program

by Linda Capps

It's been another great year for the Sign Grant Program. We have been able to assist 19 towns and 5 counties this year with getting new regulatory and mandatory traffic signs. The officials I meet with that represent these towns have expressed appreciation not only for the help in getting new traffic signs, but also the work zone package that includes cones, signs and stop/slow paddles. Several mayors and road crew members have told me that they have to depend on neighboring towns having needed traffic control devices to come and help set up work zones when needed for utility, construction, maintenance and other incidents. I also make sure that each town and county gets a "TDOT Work Zone Safety" flipbook that provides direction on setting up short-term work sites on roads and streets in rural and small urban areas.

I feel that by traveling to these counties and towns and talking with city/county officials, I have not only helped with their street and road safety issues, but

continued on page 8

TTAP Technical Assistance is Always Available

by Matt Cate

Since the publication of the summer issue of ROADTALK, many of you have responded to our offer of free technical assistance. TTAP has received requests for assistance from Algood, Caryville, Goodlettsville, Lakesite, Murfreesboro, Pikeville, Piperton, Pleasant Hill, Sparta, and Surgoinsville, just to name a few. While we are encouraged at the positive response to this previous article, we would like to emphasize that the TTAP staff is always available to provide technical assistance to any city or county across the State of Tennessee. You don't have to wait for an invitation from TTAP; we are always here to help you meet the needs of the citizens in your community.

No question or problem is too small for TTAP to help. Remember that the only bad question is the one left unasked. Often TTAP is able to provide a solution for smaller problems over the telephone. If TTAP is unable to find an answer to your question after discussing the situation over the phone, our staff members will be more than happy to make a site visit so that we can view the problem first-hand. In

some cases we will make more than one visit if that is what it takes to provide you with a solution.

If you've got a problem that has had you stumped, or if something comes up in the future, please do not hesitate to call us. You can reach us by phone at 1-800-252-7623 or (865) 974-5255, by email at TTAP@utk.edu, or by fax at (865) 974-3889. If you don't have a question now, save this information in a safe place or bookmark our website at <http://ctr.utk.edu/ttap/>. We look forward to hearing from you soon.

In this issue...

Technical Assistance	1
Traffic Sign Grant	1
Materials from TTAP	2
Leave it to Beaver, Part 2	3
Winter Already?	4
RSMS Rescheduled	5
Training Schedule	6
2005 Catalog	6
Video Catalog	7

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.


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From the Director

It's hard to believe that fall is already upon us! I know that many of you are contemplating a well earned rest now that the summer maintenance season is ending. Unfortunately, this will only be temporary, as the approach of winter brings a whole host of new challenges. In this issue, TDOT's Joe Holt provides a checklist to help you get better organized for cold weather. With fall's cooler weather, our furry friend the beaver will be going through its checklist for winter, too, and that's liable to mean trouble. Part 2 of the "Leave it to Beaver" article addresses some possible measures for coming to terms with the beaver's activities.

My first nine months as TTAP Director have flown by, and I'm still on the learning curve, trying to learn about your problems and develop better ways to serve you. One special area of attention is our training program. We really want our courses to reflect your needs for the upcoming year. I've gotten some great feedback, but would still like to hear from more of you. I'm very encouraged by your response to our offer of technical assistance. Please feel free to contact me anytime about TTAP.



Materials from TTAP



TTAP has received CDs and publications from a variety of sources. As part of TTAP's mission to provide information on the latest materials and techniques being used in the transportation field, we make these materials available to you, the city and county transportation officials of Tennessee. We have multiple copies of some materials, while others can only be loaned for short-term use. A complete listing can be found on our website ctr.utk.edu/ttap/. If you have an interest in any of the materials listed below, please call 1-800-252-ROAD or (865) 974-5255.

Publication		
Pavement Warranty Symposium - Final Report	Federal Highway Administration/Michigan DOT	2003
Community Impact Assessment	Federal Highway Administration	1996
Community Impact Mitigation - Case Studies	Federal Highway Administration	1998
Technical Publications Catalog	Federal Highway Administration	2003
CD		
Pavement Warranty Symposium - Final Report	Federal Highway Administration/Michigan DOT	2003
Culvert Management System (CMS)	Federal Highway Administration	2001
Making Work Zones Work Better - Workshop Presentations	Federal Highway Administration	2004
Roadway Safety	OSHA/US Department of Labor	2003
Recommended Use of Reclaimed Asphalt Pavement in Superpave Mix Design Method	NCHRP	2004
Synchro plus SimTraffic 6	Trafficware	2004

“Leave it to Beaver” - Part 2

by Dr. David Clarke, P.E.

Well, it’s been a while since part one of my story on *Castor Canadensis*, that genetically programmed hydraulic engineering marvel a.k.a., the beaver. Since then, Mr. and Mrs. B have likely produced a number of additions to the clan and are making plans to expand their homestead. I said in the last issue of *Roadtalk* that I’d show you a way to make the beaver family forget all about applying for a building permit. Well, I intend to keep that promise.

Before I get into the details, it may be worth a brief review of beaver psychology from part 1 of this article. As we noted, the animal’s dam building behavior is triggered by current flow and/or the sound of running water. As long as one or the other continues, the beaver keeps on building. While you can always try serving the beaver family with an eviction notice, others will soon be along to take advantage of a good, free home. Victory in this battle is only short term. So, what we’d like to do is come to an understanding with the present tenants of *The Willows*, or *Watery Glen*, or whatever your beaver estate is called. Allow the beaver to start its lodge pond, but before construction gets far enough to cause a problem, hide the sound and flow of water. The beaver then thinks the job is done and takes off for its equivalent of a “cold one.” Ingenious, huh? The beaver’s happy, you’re happy, and all’s well with the world.

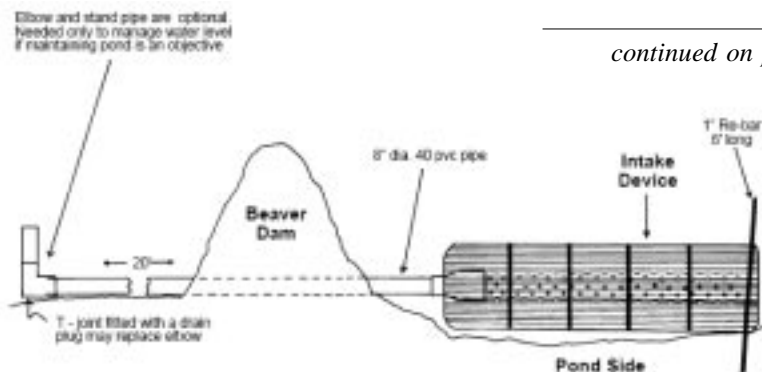
So, our plan of attack is to convince the beaver to stop its dam building activity before it

causes us problems. Normally problems with beavers come in two varieties: obstruction of drainage facilities (especially culverts) by the dam and impounding water that, if released, would be a hazard to downstream fills and structures. Unless we can figure out just where dam construction is most likely to occur, we’re going to have to wait for the beaver to start its work before taking action. Normally, beavers are most active at night during cooler weather, so personnel should be on the alert during spring and fall. Dams off the right-of-way are especially tricky to detect. Maintenance personnel need to carefully monitor watercourses upstream of critical facilities to detect beaver ponds, perhaps by regular contact with landowners, aerial inspection, or examination of aerial photographs. Once we see where the dam construction is starting, then we can develop a plan to convince the beaver that his job is done.

Given a good site, the beaver will, unless eliminated by trapping or other means, build a dam and establish a lodge. If you remove the dam, the beaver will simply build it back. This is not necessarily bad. Beaver created wetlands are excellent habitats for aquatic life, recharge underground aquifers, allow silt to settle out and have numerous other benefits so

long as the potential impacts related to flooding can be managed. A happy medium may be reached by allowing the beaver to do its thing, yet allow existing drainage facilities to function and keep the pond size small enough to minimize potential downstream impact should the dam breach.

The Cooperative Extension Service at Clemson University has developed one device which offers a low cost means of accomplishing these goals. The *Clemson Beaver Pond Leveler* permits water to flow through the beaver dam, yet hides the sound and flow so that the animal is confused. The *Leveler* is easily fabricated using inexpensive materials available from any building supply store—PVC pipe, wire mesh, wire, rebar, and some hardware. The drawing below shows the basic configuration of the device. Once the beaver begins dam construction, the dam is breached and the *Leveler* placed through the opening. The beaver will soon repair the dam, leaving the *Leveler* in place to permit water flow. The intake portion of the *Leveler* both muffles the sound of the flowing water and prevents the beaver from detecting



continued on page 5

Winter Already?



Are we crazy to talk about preparing for winter? We don't want our summer to end yet and we still have fall to enjoy. But the truth is, winter will be upon us before we know it. To get a good start, we decided to get some advice from Joe Holt from the Tennessee Department of Transportation Maintenance Division on how we can prepare for the winter season. This is what he says.

Pre-Season/Storm Activity:

Route assignments are based upon the following:

- Number of employees available
- Number and type of equipment available
- Lane miles
- Type of terrain
- Historic trouble spots - location of special events
- Average daily traffic
- Nature and length of event

Each supervisor should prepare a route assignment plan, that details each employee's responsibilities. Employees then know what their specific assignments are and can respond according to the plan. Prior to the storm event, each employee is required to inspect his equipment and route assignment to learn possible hazardous, i.e. manhole covers, railroad crossings, low clearances, etc.

Each supervisor should hold a tailgate meeting to discuss potential problems and insure all employees understand the route assignment.

Calibration:

All equipment must be calibrated to assure that brine and rock salt are applied at the appropriate rate. Calibration will be based upon the manufacturer's suggested techniques.

Equipment Inspection:

Prior to the event, each employee should inspect their assigned equipment, verifying that lights, belts and hoses, tires, anti-icing, and deicing equipment, windshield wipers and etc. are in good working order.

Materials:

The unit supervisor must ensure that sufficient salt brine and rock salt are in inventory.

Weather Forecasts:

Each supervisor is responsible for obtaining and evaluating the necessary weather forecast information. Sources of weather information include the Internet, Roadway Weather Information System, de-

partmental contract forecast, local media, and the U.S. Weather Bureau.

Training:

All employees should be trained so that they understand the following:

- Program purpose and guidelines.
- Storm Management Plan.
- Operation, maintenance and inspection of the necessary equipment.
- To understand how the freeze point depressant works.
- To implement recent technology.
- To make timely and economical judgments.
- To properly react with customers.
- To properly store freeze point depressant chemicals.
- Environmental impacts of snow and ice removal operations.

We hope the participants who attended the 9th Eastern Winter Road Maintenance Symposium & Equipment Expo held in Knoxville on September 8 -9, 2004 had a chance to gain some insights to the best practices for preparing for winter.



Road Surface Management System Workshop Rescheduled

by Matt Cate

Due to a conflict with the Ninth Annual Eastern Winter Road Maintenance Symposium & Equipment Expo to be held on September 8 and 9 in Knoxville, the RSMS for Beginners workshop originally scheduled to be held on September 8 in Nashville has been postponed. The new date for the RSMS workshop in Nashville is October 26.

Some of you may be asking, "What is RSMS and why should I care?" RSMS, or Road Surface Management System, is a pavement management system developed by the University of New Hampshire Technology Transfer Center (a fellow Local Technical Assistance Program center). The RSMS software allows users to inventory their road network,

**RSMS
Workshop
Rescheduled
to
October 26, 2004**

track the condition of these roads, establish priorities for maintenance, and even to budget for future road maintenance activities such as resurfacing and crack sealing. While RSMS is not a magic box that will provide all of your answers, it is a useful tool that can be quite helpful to cities or counties seeking to make the best use of their road maintenance funds. It also provides a basis for maintenance decisions when the in-

evitable question of "Why isn't my street being paved this year?" arrives.

The RSMS for Beginners course will give participants exposure to the structure and use of the RSMS software package. Course participants will learn what information is needed to set up the roadway inventory, how to perform pavement condition surveys, input condition data, and interpret results to establish maintenance priorities. If you think that RSMS could be helpful to your agency, we encourage you to attend this course. If you have questions regarding RSMS software or the RSMS workshop, please feel free to contact TTAP at 1-800-252-7623 or TTAP@utk.edu.

Beaver, *continued from page 3*

its flow. The cage keeps the beaver from blocking the flow of pond water into the Leveler. Additional details on the construction and installation of the Leveler is available at www.clemson.edu/psapublishing/pages/afw/afw1.pdf.

The number of Leveler devices needed depends upon the amount of flow that needs to be maintained. Care should be taken to provide sufficient outlet flow to exceed the upstream inflow. If water overtops the dam, the beaver may be cued to build it higher.

The Leveler is not a panacea for beaver problems. It does not work well in cases where

beavers are blocking culverts as culvert diameter is normally selected for peak flow conditions. While the Leveler permits normal flow, its small diameter means that multiple devices must be installed to give the pipe area needed for high flows. Space may not permit this. In such situations, the best approach is to keep the culvert clear and somehow encourage the beaver to build its dam farther upstream, where the Leveler can be employed to advantage.

Given the difficulty of protecting culverts, a better long term approach is to avoid constricting streams. Multiple box culverts and bridges keep streams wider, deeper,

and slower at road crossings, reducing the attractiveness of the location to beavers. Where the animal is present, constricting streams inevitably leads to beaver problems (and associated costs). It is more environmentally appealing to reduce the potential for beaver problems in the design phase of highway projects than to kill or relocate the animals. If devices such as the Leveler or improved water passages such as the box culvert are not practical, other options for beaver mitigation include tree protectors, repellents, electric fences, and live trapping and relocation. For problem situations, state wildlife officials should be consulted.

2005 CATALOG

by Frank Brewer

TTAP is planning its 2005 catalog of courses. Do you have ideas of courses that you would like us to present? If so, please contact Frank Brewer or Julie Robinson. You may reach us at 865-974-5255 or 800-252-ROAD (7623). Our email address is ttap@utk.edu. Let us know what training topics interest you. Please be sure to provide a contact name and phone number so we can get back in touch. We would like to have

your feedback by October 15, 2004.

Probable courses are: Work Zone/Flagging, Intersection Design, Asphalt Pavement Distress Analysis, Traffic Engineering 1, Traffic Engineering 2, Traffic Signs and Pavement Markings, Geotechnical Engineering Concepts 1, and Roadway Drainage. Our mission is to bring training to you in a timely fashion and economically efficient manner. By covering topics significant to you, we can provide value added to your training program. We value your input.

New Workshops

Have an
Idea?



Give
us a call!

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. The Center for Transportation Research 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 Annette Jones at 1-800-252-ROAD.



*CEU and PDH credit hours available.

TITLE	DATE	LOCATION	INSTRUCTOR(S)
Design of At-Grade Intersections	Sept 13, 2004	Nashville	Childers
Advanced Roadway Surveying	Sept 20-21, 2004	Nashville	Clarke
Work Zone/Flagging	Oct 04, 2004	Jackson	Brewer
Work Zone/Flagging	Oct 05, 2004	Nashville	Brewer
Roadside Safety Standards	Oct 06, 2004*	Chattanooga	Julian
Storm Water Drainage	Oct 25, 2004	Nashville	Clarke
Road Surface Management System (RSMS) for Beginners	Oct 26, 2004*	Nashville	Cate/Brewer
Asphalt Pavement Design	Nov 03, 2004*	Jackson	Huang
Asphalt Pavement Maintenance	Nov 08, 2004	Knoxville	Hearn
Asphalt Pavement Maintenance	Nov, 09, 2004	Nashville	Hearn
Traffic Signs & Pavement Markings	Nov 16, 2004	Nashville	Cate
Traffic Engineering 1	Dec 13-15, 2004	Nashville	Wegmann/Chatterjee/Han

*Change in date

Updated Video Catalog Returns to the TTAP

by Matt Catt

Over the years many of you have utilized the TTAP video catalog to provide in-service training for employees within your agencies. The last printed copy of the TTAP Video Catalog was distributed to everyone on our mailing list in 2001. Since that time copies of the catalog have been distributed in workshops and by request. However, the information in the printed catalog remained unchanged despite the fact that TTAP has added dozens of new videos in the three years since. Thanks to the efforts of Justin Maderia, TTAP Graduate Research Assistant, the video catalog has been brought back up to date.

With advances that have brought widespread access to the internet and considering the high costs of printing a new video catalog, TTAP has decided to post the new catalog on our website (<http://ctr.utk.edu/ttap>). This move will allow us to keep the catalog current at all times rather than offering a printed catalog which is only updated every two or three years. If you are unable to access the TTAP website we will be happy to send out a printed copy of the catalog upon request.

TTAP's video lending policy will remain unchanged. Government agencies within the State of Tennessee will be able to borrow video titles for three weeks at no cost. These agencies will be able to purchase

copies of non-copyrighted titles for their own use at \$5.00 per tape. Private entities and all others outside of the State of Tennessee will be able to borrow titles for three weeks at \$5.00 per title, or they may purchase copies of non-copyrighted titles for \$15.00 per tape.

We encourage you to utilize TTAP's extensive video collection. At over 300 titles, we likely have something of interest or use to your organization. If you have questions about TTAP's video library or our lending policies, please feel free to contact us at 1-800-252-7623 or TTAP@utk.edu.

TALK TO TTAP

We are always looking for your comments, ideas and suggestions to help make the TTAP program more useful to you.

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.

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

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

Name _____

Address _____

Title _____

Organization _____

Phone _____ Fax _____

Email _____

Are you currently on TTAP's mailing list? ____ yes ____ no

Do you wish to be on the mailing list? ____ yes ____ no

Please fax your form to TTAP at (865) 974-3889 or mail to TTAP; Suite 309 Conference Center Building; Knoxville, TN 37996-4133.

FROM: _____

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Federal Highway
Administration



Traffic Sign Grant Program. *continued from Page 1*

I also have benefited by having had the pleasure of meeting some of the nicest people in the State of Tennessee. Also, I have learned more about Tennessee's rural areas in the past three years than I could ever have hoped for having any other job. I have seen the "Tennessee" Statue of Liberty in the town of Ridgely in Lake County while visiting with Mayor Billy Gray. The torch "She" holds is lit by a light bulb which has to be replaced pretty often because of wayward rocks on Saturday nights. I've had a RC Cola and a

Moon Pie for lunch in Bell Buckle. (Bell Buckle is the RC Cola and Moon Pie capital of the world, but we all knew that!) I've been corrected many times for mispronouncing the names of cities, like



Statue of Liberty in Ridgely, TN

"Normandy." It's not pronounced like "Normandy" as in the beach in WW2. It's pro-

nounced "Norm – Andy" because of the two brothers who founded the town.

I'm looking forward to the next year's schedule because I know that there will again be towns and counties that will greatly benefit from this grant program and there will also be new places to see and wonderful people to meet. If you are interested in getting a traffic sign grant for your town or county, you can contact Diana Collins (with TDOT) at (615) 253-2419.

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