

# Country Roads & City Streets

WV Transportation Technology Transfer Center

September 2003

College of Engineering & Mineral Resources

Vol. 18 No. 3



## RAIN, RAIN, GO AWAY.....

With all of the rain and flooding that has impacted our state of West Virginia the last several years, the WV T<sup>2</sup>Center felt it appropriate to provide some additional insight into the hazards of flooding. The following information was taken from FEMA's website located at <http://www.fema.gov>.

### What Is A Flood?

Floods are the most common and widespread of all natural disasters — except fire. As defined by the National Flood Insurance Program, a flood is: A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

- Overflow of inland or tidal waters,
- Unusual and rapid accumulation or runoff of surface waters from any source,
- A mudflow.

[The] collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood.

Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation steps now, such as engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage to your home and financial loss from building and crop damage should a flood or flash flood occur.



*This photo depicts receding water from a flash flood on Dug Hill Road, Co. Rt. 68/1, Monongalia County. Water from the stream left the channel and flooded onto the road. At the time of this picture, the water has receded and the road is passable.*

### How to Plan

Nobody can stop a flood. But if you are faced with one, there are actions you can take to protect your family and keep your property losses to a minimum.

The most important thing is to make sure your family is safe.

### What Should I Do Before A Flood?

- Keep a battery-powered radio tuned to a local station, and follow emergency instructions.
- If the waters start to rise inside your house before you have evacuated, retreat to the second floor, the attic, and if necessary, the roof. Take dry clothing, a flashlight and a portable radio with you. Then, wait for help. Don't try to swim to safety; wait for rescuers to come to you.

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## WE'RE PROUD OF OUR RECENT ROADS SCHOLAR GRADUATES!

*Country Roads and City Streets* is a quarterly publication of the West Virginia Transportation Technology Transfer Center (T<sup>2</sup> Center). The purpose of this newsletter is to provide information that is beneficial to highway construction and maintenance personnel.

The material and opinions contained in this newsletter are those of the West Virginia Transportation Technology Transfer Center, and do not necessarily reflect the views of the Federal Highway Administration or the WV Department of Transportation. Material contained in *Country Roads and City Streets* is a combination of original and borrowed material. Every effort has been made to ensure the integrity and accuracy of this material. However, the WV T<sup>2</sup> Center does not assume responsibility for any incorrect material.

The WV Roads Scholar Program is designed for local and state transportation personnel to expand their knowledge and improve their skills in the areas of roadway maintenance and management techniques. Like previous Roads Scholar graduates, all of these individuals have attended and completed a minimum of twenty-four hours in-class training. We encourage past, present, and future graduates to keep up the great work, and continue to take advantage of training opportunities. Training benefits everyone—you, your agency, and the individuals who use the roadways you help maintain. We congratulate you for your hard work and dedication to learning!

To learn more about our Roads Scholar I Program, our new Roads Scholar II Program, or other available training opportunities, please contact Kim at 304-293-3031 x 2612.



**Front Row:**  
David Calvert, Jeannette Thomas,  
and David Hatcher - WV Parkways  
**Back Row:**  
William Johnson, Larry Williams,  
Brian Ramplewich - WVDOH D10



**Front Row:**  
Claude Neff, Sam Perris - WVDOH D4  
**Back Row:**  
Doyle Williams - WVDOH D7  
Jack Moore - WVDOH D4  
Pat Conrad - WVDOH D4  
Lowell Smith - City of Buckhannon  
Don Hedrick - WVDOH D8



**Ken Patrick**  
WVDOH D3



**Bill Ward**  
WVDOH D3



**Front Row:**  
**James Ellis - WVDOH D3**  
**Bill Blair - City of Vienna**  
**Max Daily - City of Vienna**  
**Tommy Bunner - City of Vienna**  
**Back Row:**  
**Danny Knopp - WVDOH D3**  
**Rod Deem - City of Vienna**  
**Bob Whited - City of Vienna**  
**Lee Emrick - City of Vienna**  
**Brian Tanner - City of Vienna**



**Front Row:**  
**Nathan Parks - WVDOH D9**  
**David Jenkins - WVDOH D9**  
**Back Row:**  
**Glen Brown - WVDOH D9**  
**James Goheen - WV Parkways**  
**Bob Prince - WV Parkways**  
**William Brooks - City of Ronceverte**



**Charles Brackman - WVDOH D9**  
**Joe Loudermilk - WVDOH D9**  
**Larry Legg - WVDOH D1**  
**Tom Hively - WVDOH D1**  
**Jeff Davis - WV Parkways**



**Allen Settle - City of Dunbar**  
**Neal Morrison - WVDOH D2**  
**Bill Lanham - City of Dunbar**



**Ed Graham, Johnny Gray**  
**WV Parkways**

**Photo Not Available**

**Aaron Gibson - WVDOH D4**  
**Ron Wyatt - WVDOH D8**  
**Dave Douglas - WVDOH D4**

**CENTER STAFF &  
 CONTACT INFORMATION**

**WV Transportation**  
 Technology Transfer Center  
 West Virginia University  
 PO Box 6103  
 Rm. 651 and 653-B  
 Morgantown, WV 26506-6103

Phone: (304) 293-3031 x 2612  
 Fax: (304) 293-7109  
[www.cemr.wvu.edu/~wwwtt/](http://www.cemr.wvu.edu/~wwwtt/)

**STAFF**

**Dr. Ronald Eck, P.E.**

Director  
 (304) 293-3031 x 2627  
[reck@wvu.edu](mailto:reck@wvu.edu)

**Michael Blankenship, P.E.**

Program Manager  
 (304) 293-3031 x 2629  
[mblanken@wvu.edu](mailto:mblanken@wvu.edu)

**Kim Carr**

Public Relations Specialist  
 (304) 293-3031 x 2612  
[kcarr@wvu.edu](mailto:kcarr@wvu.edu)

**Keith Bryant, E.I.**

Technical Assistant  
 (304) 293-3031 x 2662  
[kbryant@mix.wvu.edu](mailto:kbryant@mix.wvu.edu)

**Sandy Wotring**

Administrative Assistant  
 (304) 293-3031 ext. 2630

**Bill Wyant**

Senior Volunteer  
[wwyant@hsc.wvu.edu](mailto:wwyant@hsc.wvu.edu)

By: Keith B. Bryant



The WVU T<sup>2</sup> Center was the site for the American Public Works Association *Click, Listen and Learn* (CL&L) Session on June 18, 2003.

A CL&L session is a “webcast” where live speakers use PowerPoint slides and voice to communicate from a remote location. The audience participates from an office or meeting room with a computer using the Internet as the viewing medium and telephone for audio transmission. One person can participate in his or her own office or several hundred can participate in a meeting room with the image projected onto a big screen.

During the session, participants can email their questions to the speaker(s), who respond to them during two question and answer periods. The June 18 session was a partnership between the WV T<sup>2</sup> Center and the Community Visions Foundation. The Center provided the site, computer and projection equipment and reproduced the handout. The Community Visions Foundation covered the cost of the site registration fee.

In this CL&L session, three speakers gave presentations on the topic of *Smart Growth*: Dave Zelenok’s presentation dealt with the question of “What is Smart Growth?”; Brian Bochner presented “The Smart Growth Transportation System and Public Works”; and lastly, David Cooper spoke about “The Transportation and Land Use Framework.” The definition of Smart Growth,

according to the American Planning Association (APA), is “Planning, design, development and revitalization of communities to promote a sense of place, the preservation of natural and cultural resources and the equitable distribution of the costs and benefits of development.” Simply, Smart Growth is a set of policies that promotes the development of livable communities. This is frequently a touchy subject with municipalities, developers, business owners, residents and others who are affected by any change in land development policies.

There is a growing movement for less sprawl in developing areas. Some of the challenges associated with sprawl can be traffic congestion, piecemeal development, lack of linkages within developments, and dependence on automobiles. Typically in a sprawl situation, there are many low-density housing developments constructed outside of an urban area. These low-density developments are usually separated from educational, recreational, commercial, and retail developments, so a motor vehicle is required to reach a grocery store, a school, or a park. This leads to congestion of the auto transportation infrastructure. Since there is usually little attention paid to pedestrian and bicycle provisions, such as sidewalks and separate bicycle facilities, it is often not easy to use non-motorized modes for transportation or recreation. The sedentary lifestyle that results can lead to poor health and obesity.

Smart Growth is seen as a solution to alleviate some of these problems. Some of the methods used in Smart Growth are: urban infill and open space preservation; regional DOT planning; mixed land uses; traditional neighborhood design; transportation demand management; and transit-oriented

design. Note that Smart Growth principles encourage high-density development and mixed income housing. This means that instead of having one large house on several acres of land, housing units are placed closer together, which in turn are close to parks, schools and retail and commercial uses. This encourages non-motorized transportation and fosters a sense of community.

As we can see, the topic of Smart Growth is controversial, yet municipalities can benefit from applying some of its principles. This CL&L session presented Smart Growth in an objective and informational manner. The participants were introduced to the perceived advantages and disadvantages.

If you would like to find out more about Smart Growth, please contact the WV T<sup>2</sup> Center for a copy of the handouts used in the CL&L presentation, or go to [www.apwa.net/education/cll](http://www.apwa.net/education/cll) to order the presentation in its entirety (\$59 for non-members).

#### RELATED INTERNET LINKS

[www.smartgrowth.org](http://www.smartgrowth.org)

[www.uli.org](http://www.uli.org)

[www.sprawlwatch.org](http://www.sprawlwatch.org)

[www.sustainable.org](http://www.sustainable.org)

[www.planning.org](http://www.planning.org)

For upcoming Click, Listen, & Learn Workshops check-out [www.apwa.net/education/cll/](http://www.apwa.net/education/cll/)

This summer I attended the LTAP/T<sup>2</sup> Regions 3 and 4 meeting, in Historic Williamsburg, VA. During the three-day meeting, I was exposed to hot topics such as reauthorization of highway legislation and informative topics such as “What’s New at Your Center.” All in all, I took away a better understanding of tactics that other T<sup>2</sup> Centers implement to provide a level of excellence for their respective states. However, one item particularly stuck out in my mind. I was introduced to a construction technique of which I was previously unaware. In lieu of traditional sidewalk forming, there is an alternative procedure offering considerable life cycle cost savings, while, at the same time, producing the same results as traditional methods. This technology employs reusable plastic formboards in sidewalk construction.

During one of the breaks, I befriended the speaker who presented this topic and asked for more information about the product. Mr. Gib Peaslee of the Florida LTAP/T<sup>2</sup> Center was kind enough to take a few minutes to elaborate on the product and provide me with additional information. I immediately envisioned that communities in West Virginia could benefit from using this product in their sidewalk construction and rehabilitation projects. More and more communities are expressing interest in the Walkable Community Workshops conducted by Dr. Ron Eck of the West Virginia T<sup>2</sup> Center. With interest in this topic growing, municipalities will wrestle with the costs of sidewalk construction in the future. While this technology has a higher up-front or capital cost, there may be substantial savings over the product’s life cycle. These cost savings may promote new opportunities for communities to use the money saved on other projects.

The following article is from the Florida LTAP/T<sup>2</sup> Center newsletter (*Technology Transfer Quarterly*, May 2003, Vol. 18 No. 2 ; authored by Mr. Peaslee) and demonstrates the successful experience the City of Palm Bay Florida had with this product.

### **Palm Bay Showcase Reveals Sizable, Long-term Cost Benefits**

Rarely can decision-makers, in the public service arena, make a simple “yes or no” implementation decision when a new product or technology is introduced. This is particularly true when the new technology has a significantly higher startup cost than the currently accepted practice. Typically, management needs to be convinced that a new technology provides enough benefit to the public to warrant the expenditure of funds.

This is exactly the situation Palm Bay’s Public Works Director Jim Proce and his management team found themselves facing when considering reusable plastic sidewalk formboard technology. Like many of America’s communities, the City of Palm Bay is growing and this growth brings increasing “quality of citizen life”

issues. With a population of more than 85,000, Palm Bay has an aggressive sidewalk and bike path program with a budget of approximately \$100,000 annually, with additional funding provided by grants. Maintaining a growing network of more than 150 miles of walkways, bikeways and sidewalks, pedestrian and bicycle safety is a top priority.

Noticing contractors toss away and repurchase framing lumber after only one or two projects, Crew Leader Gary Vroman decided to look into the sidewalk program costs on his own. Vroman sensed there must be a more cost effective and environmentally friendly solution to this waste. Generally, the city has used Gary Vroman’s crew for sidewalk construction. The City uses an in-house construction crew because it provides flexibility and cost and scheduling benefits. City staff can be more responsive to citizen requests and emergency situations, while also negotiating favorable material contracts and eliminating costs for sales tax and profit margins.

Vroman discovered the Plastiform Company and their reusable, flexible



*Gary Vroman and Crew removing the form boards.*

WV T<sup>2</sup> ADVISORY BOARD

**Robert Amtower**  
WVDOT  
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plastic formboard system and approached management with his discovery. Although the initial response was cautious, Vroman was persistent and after several more attempts—each time reinforcing his reusable formboard solution with additional potential cost saving benefits—his management team approved a pilot project.

The pilot project was an overwhelming success. Increases in productivity were significant and numerous other advantages became clear. The plastic formboards are lightweight and flexible; are easy to clean and store; are long lasting; provide increased productivity—they reduced crew size by one third, reducing labor costs by more than 50 percent—and reduced total project time since forms are removed as soon as the concrete sets.

In many cases crews can set up in the morning, pour in the early afternoon and strip, clean and store the framing two hours later. Storage and equipment cost savings were realized—a smaller truck reduced maintenance and mileage costs. All these advantages produced impressive long-term and consistent cost savings. With the flexibility afforded by the plastic form boards, many more aesthetically pleasing, environmentally friendly and user-safe designs can be quickly and easily installed.

While the initial cost of this product can run substantially more than the cost of wood, Palm Bay has found it to be a wise, long-term investment. Much of Palm Bay's current formboard stock has been used more than 100 times, on many projects, and still has plenty of life left. Palm Bay anticipated the material savings (lumber, nails and stakes), but when adding the labor savings against wood framing, breakdown and prep time to the equation, they realized another impressive long-term return on their reusable formboard investment.

All Showcase handout material is available on loan from the Florida T<sup>2</sup> Center - <http://t2.ce.ufl.edu>. A sequential still photo experience of this Showcase is available at [www.pdshowcase.org](http://www.pdshowcase.org) by clicking on Palm Bay Showcase.

For information on the flexible/reusable plastic formboards, visit the Plastiform Company's web site [www.plastiform.com](http://www.plastiform.com) or contact Mike Lane via email at [mikelane@plastiform.com](mailto:mikelane@plastiform.com); via phone (800) 358-3007. You can also contact the WV T<sup>2</sup> Center at 304-293-3031 x 2612 or 2662 for additional information about this product.



*Completed framing at the demonstration site.*



*Mike Lane demonstrates formboard flexibility.*

- One of the most important things that you can do to protect your home and family before a flood is to purchase a flood insurance policy.

### *If Time Permits:*

- Turn off all utilities at the main power switch and close the main gas valve if evacuation appears necessary.
- Move valuables, such as papers, furs, jewelry, and clothing to upper floors or higher elevations.
- Fill bathtubs, sinks and plastic soda bottles with clean water. Sanitize the sinks and tubs first by using bleach. Rinse, then fill with clean water.
- Bring outdoor possessions, such as lawn furniture, grills and trash cans inside, or tie them down securely.

### **What Should I Do During a Flood?**

- Do not drive through a flooded area. If you come upon a flooded road, turn around and go another way. More people drown in their cars than anywhere else.
- Do not walk through flooded areas. As little as six inches of moving water can knock you off your feet.
- Stay away from downed power lines and electrical wires. Electrocution is another major source of deaths in floods. Electric current passes easily through water.
- Look out for animals, especially snakes. Animals lose their homes in floods, too. They may seek shelter in yours.

### **What Should I Do After A Flood?**

- If your home, apartment or business has suffered damage, call the insurance company or agent who handles your flood insurance policy right away to file a claim.
- Before entering a building, check for structural damage. Don't go in if there is any chance of the building collapsing.
- Upon entering the building, do not use matches, cigarette lighters or any other open flames, since gas may be trapped inside. Instead, use a flashlight to light your way.

- Keep power off until an electrician has inspected your system for safety.

- Flood waters pick up sewage and chemicals from roads, farms and factories. If your home has been flooded, protect your family's health by cleaning up your house right away. Throw out foods and medicines that may have come into contact with flood water.

- Until local authorities proclaim your water supply to be safe, boil water for drinking and food preparation vigorously for five minutes before using.

- Be careful walking around. After a flood, steps and floors are often slippery with mud and covered with debris, including nails and broken glass.

- Take steps to reduce your risk of future floods. Make sure to follow local building codes and ordinances when rebuilding, and use flood-resistant materials and techniques to protect yourself and your property from future flood damage.

### **SEVERE WEATHER WATCHES AND WARNINGS DEFINITIONS**

**Flood Watch:** High flow or overflow of water from a river is possible in the given time period. It can also apply to heavy runoff or drainage of water into low-lying areas. These watches are generally issued for flooding that is expected to occur at least 6 hours after heavy rains have ended.

**Flood Warning:** Flooding conditions are actually occurring or are imminent in the warning area.

**Flash Flood Watch:** Flash flooding is possible in or close to the watch area. Flash Flood Watches are generally issued for flooding that is expected to occur within 6 hours after heavy rains have ended.

**Flash Flood Warning:** Flash flooding is actually occurring or imminent in the warning area. It can be issued as a result of torrential rains, a dam failure, or ice jam.

The West Virginia T<sup>2</sup> Center is a part of the nationwide Local Technical Assistance Program (LTAP), which is funded by the Federal Highway Administration. The Center also receives funding from the West Virginia Department of Transportation.

### **Mission:**

The mission of the West Virginia T<sup>2</sup> Center is to foster a safe and efficient transportation system. The T<sup>2</sup> Center's mandate is to improve the transportation system by improving the professional skills of those involved in highway design, construction and maintenance, and to act as a resource for them by keeping up-to-date training libraries and constantly seeking/developing new technologies.

### **Overall Goal:**

The Center's overall goal is to improve the transportation system by focusing on professional training, technical assistance, and information dissemination.

To achieve this goal, the WV T<sup>2</sup> Center does the following:

- Provides on-site training and demonstrations
- Publishes a quarterly newsletter
- Maintains a video and publications library
- Provides technical assistance via e-mail, telephone, fax, mail, or site visits

**IN BRIEF WITH RON ECK, DIRECTOR WV T<sup>2</sup> CENTER**



Helping you find answers to your transportation-related questions is just one of the ways our Center can help you and your agency. As a reminder, one of the services we provide is maintaining a lending library, covering a wide-range of roadway transportation topics – everything from drainage issues to chainsaw safety—just to name a few. While our library consists of traditional printed publications, books, and manuals, we also have numerous videos and CD-Roms. In addition to these media, we are able to access several different on-line lending services, conduct Internet searches, utilize other LTAP Centers in our network, along with contacting other partner organizations to help locate the information you need.

The cost to you? All of the materials from our lending library are available free of charge. The only cost you incur is mailing the materials back to the Center after the two-week loan period.

I encourage you to check out our website ([www.cemr.wvu.edu/~wwwtt/](http://www.cemr.wvu.edu/~wwwtt/)) to see a complete listing of available materials, as we are constantly adding new items. You can also contact Keith Bryant at 304-293-3031 x 2662 to have an electronic listing of our materials sent to you. If we don't have the information at our Center, we'll try our best to find it.

In these days of tightening budgets, isn't it nice to know that some things are still affordable, and even free?

West Virginia Transportation Technology Transfer Center  
West Virginia University  
College of Engineering and Mineral Resources  
Department of Civil and Environmental Engineering  
PO Box 6103  
Morgantown, WV 26506-6103

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