

# Country Roads & City Streets

WV Transportation Technology Transfer Center

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College of Engineering & Mineral Resources

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## RECOGNIZING AND PREVENTING HAZARD TREES

by Ron Eck



With the arrival of warmer weather, vegetation management becomes an important concern for roadway agencies. Vegetation management includes trees. While trees are beneficial to the environment and beautify an area, they can also be dangerous. Trees or parts of trees can fall and cause damage to property and/or injury to people. If the tree has a defect that could cause failure of part of the tree and if there is a target present, the tree is called a hazard tree.

The International Society of Arboriculture provides some tips for identifying common defects associated with hazard trees. These are reproduced on page 3 to assist roadway agencies. Regular tree care will help identify hazardous trees and the risk they present. Once the hazard is recognized, steps may be taken to reduce the likelihood of the tree falling and causing damage or injury.

### MANAGING TREE HAZARDS

Reducing risk associated with hazard trees can take many forms. An arborist familiar with hazard tree evaluation may suggest one of more of the following:

- **Remove the target.** Although homes or power lines cannot be moved, sometimes picnic tables, cars, or landscape features can be moved to prevent them from being hit by a falling tree.
- **Prune the tree.** Remove the defective branches of the tree. Since inappropriate pruning may also weaken a tree, it is best done by a Certified Arborist.
- **Cable and brace the tree.** Provide physical support for weak branches and stems to increase their strength and stability.
- **Provide routine care.** Mature trees need routine care in the form of water, fertilizer (in some cases), mulch and pruning, as dictated by the season and their structure.
- **Remove the tree.** Sometimes hazard trees are best removed. If possible, plant a new tree in an appropriate place as a replacement.



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*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.

## TREE HAZARD CHECKLIST\*

- Are there detached branches hanging in the tree?
- Does the tree have cavities or rotten wood along the trunk or in major branches?
- Have any branches fallen from the tree?
- Have adjacent trees fallen over or died?
- Has the trunk developed a strong lean?
- Have the roots been broken off, injured or damaged by lowering the soil level, installing pavement, repairing sidewalks or digging trenches?
- Has the site recently been changed by construction, raising the soil level or installing lawns?
- Have the leaves prematurely developed an unusual color or size?
- Have trees in the adjacent wooded areas been removed?
- Has the tree been topped or otherwise heavily pruned?

## SOURCES OF ADDITIONAL INFORMATION

*A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*

by *Nelda P. Matheny and James R. Clark*

Available for \$45 ppd. from:  
International Society of Arboriculture  
P.O. Box 3129, Champaign, IL 61826-3129

*Tree Hazards-13 Questions That Could Save a Life (leaflet)*

*A New Tree Biology (book)*

*“Targets for Proper Tree Care (article published in the Journal of Arboriculture, 9(11): Nov. 1983)*

Available from:  
Shigo and Trees, Associates, P.O. Box 769  
Durham, NH 03824 (phone: 603-868-7459)

**EXAMPLES OF DEFECTS PRESENT IN URBAN TREES . . .\***

1. Re-growth from topping, line clearance or other pruning
2. Electrical line adjacent to tree
3. Broken or partially attached branch
4. Open cavity in trunk or branch
5. Dead or dying branches
6. Branches arise at one point on trunk
7. Decay and rot present in old wounds
8. Recent change in grade, soil level or other construction



**EXAMPLES OF DEFECTS PRESENT IN RURAL TREES . . . \***

1. Recent site construction, grading and tree removal; clearing of forests for development
2. Previous tree failures in local area
3. Tree leaning near target
4. Forked trunk; branch stems equal in size
5. Wet areas in shallow soil

*\* Source: International Society of Arboriculture, used with permission*



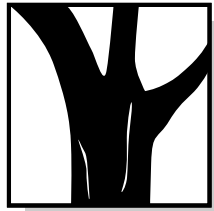
**NOTE THAT EVEN NON-DEFECTIVE TREES CAN CREATE HAZARDOUS CONDITIONS, INCLUDING:**

- Roots causing pavement/sidewalk upheaval
- Branches obscuring signs/security lighting
- Trees obscuring traffic intersections and lines of sight.
- Branch interference with utilities, traffic, or buildings
- Litter/large fruit
- Thorns on branches



**Aging, defective trees can be a liability concern if they are not monitored and maintained, even if they look healthy.**

**Some danger signs to be aware of...**



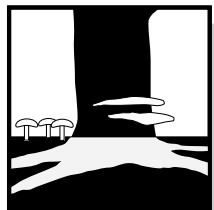
**CRACKS**

Any tree wound is an opening for decay. Watch for deep, open cracks in trunks or branches. Vertical cracks on opposite sides of a trunk can be a sign of severe injury.



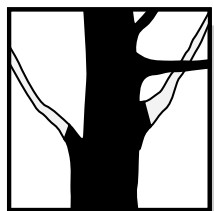
**FORKED TRUNKS**

These often are weak, particularly if the fork is narrow with bark growing between trunks. Part of the tree and trunk may need to be removed.



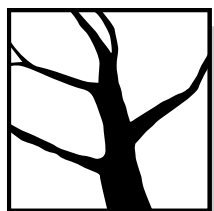
**ROOT ROT**

Roots may be weakened or decayed. Look for fungal growth or mushrooms on or near the bases of trees. Rot often is not obvious to the untrained eye. Hire a professional.



**DEAD LIMBS AND BRANCHES**

Dead limbs can fall at any time. Remove any crossed or rubbing limbs. Pay particular attention to oddly shaped/kinked or long, heavy horizontal limbs.



**ARCHITECTURE**

Trees that lean or exhibit unbalanced growth should be examined every year. Keep play areas and structures away from leaning trees whenever possible.

Graphics / Illustration: Tom Laird, College of Agricultural Sciences. Copyright Penn State.

Visit us at

**"<http://aginfo.psu.edu/psp/index.html>"**

## 2002 ROADWAY MANAGEMENT CONFERENCE MOCK TRIAL

The 2002 Roadway Management Conference was held in Virginia Beach, VA March 11-13. As in previous years, the conference included a Mock Trial session. The mock trial was presented as a conference session to provide attendees with the opportunity to observe a portion of the courtroom proceedings in a civil lawsuit. This allows participants the opportunity to experience first-hand the process of litigation and obtain additional insight into the responsibility that not only their agency has, but also they themselves have regarding roadway safety issues. This year's trial presented a hazard tree case. The case study, on which this trial was based, was taken from an actual lawsuit, which ended in an out-of-court settlement. All names and places used for the mock trial were fictitious.

This was a very compelling case based on a tragic incident. A tree fell onto the roadway crushing a passing car and killing all three of the five passengers. Witnesses for the plaintiff provided testimony, providing background information on work that was being conducted by highway agency personnel in the area near this tree. Witnesses reported speaking with individuals they assumed worked for the roadway agency. Witnesses for the defendant disputed claims that the tree had visible defects. Items such as right of way issues, level of tree inspections conducted, whether the transportation department was negligent in not cutting down the tree, were



among the issues argued. Witnesses for both sides included expert witnesses in the area of forestry, in addition to area residents.

Three real-life attorneys participated in these proceedings. Mr. Peter Messitt, playing the Judge, is Assistant Attorney General for the Commonwealth of Virginia. Mr. Brian Baxter, playing the Defense Attorney, is Senior Deputy Attorney General with the Commonwealth of Pennsylvania. The third attorney, Mr. Richard Rosenthal, playing the Plaintiff's Attorney, is a partner with the firm of Edgar Snyder and Associates in Pittsburgh, PA. Various volunteers from the states of WV and VA played witnesses. Six participants were selected from the audience to serve as jurors for this case.

In conclusion, hazardous trees are an issue faced by all roadway agencies and personnel. Being aware of and recognizing the potential signs of hazardous trees can help eliminate a tragedy such as was covered in this mock trial. It's important to make sure your agency has a process in place for reviewing and monitoring trees, and is able to recognize hazardous conditions. Our hope is that future accidents such as the one discussed in the mock trial can be eliminated, thus creating a safer environment for all.



### CENTER STAFF & CONTACT INFORMATION

WV Transportation

Technology Transfer Center  
West Virginia University  
Engineering Sciences Building  
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/~wwwt/](http://www.cemr.wvu.edu/~wwwt/)

### 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)

#### Andrew Morgan, E.I.

Technical Assistant

(304) 293-3031 x 2662

[amorga10@wvu.edu](mailto:amorga10@wvu.edu)

#### Sandy Wotring

Administrative Assistant

(304) 293-3031 ext. 2630

#### Bill Wyant

Senior Volunteer

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

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

**Robert Amtower**

WVDOT  
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Safety Program  
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## CONGRATULATIONS TO OUR MOST RECENT GRADUATES

The WV T<sup>2</sup> Center is happy to report that we had 92 Roads Scholar graduates during our most recent round of training. The following pages contain pictures and names of these graduates. If you work with or know any of these individuals, please take the time to congratulate them on their accomplishment. The skills and knowledge they learned in this class will not only help them but the municipalities and agencies in which they work.



**Ray Clendenin, C.H. Meade, Bryon Shrewsberry, Bo Ellis, Beckley Sanitary Board**



**Randy Shuman, Consultant**



**Chris Sowards, WVDOH District 2**



**Melissa Thompson, WVDOH District 6**



**Les Ball, WV Parkways**

## 2002 ROADS SCHOLAR GRADUATES...



*Group shot of our Moundsville Graduates*

Tim Birch - City of Wheeling  
Matthew Brownlee - WVDOH  
John Burge - WVDOH  
James Byers - City of Glen Dale  
David Cline - WVDOH  
Ray Cooper - WVDOH  
Paul Devore - WVDOH  
Charles Kirchner - WVDOH  
John Griffin - WVDOH  
Mark Griffith - WVDOH  
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Donald Hyatt - WVDOH  
Jeff Johnson - WVDOH  
James Kosut - WVDOH  
Paul Minton - WVDOH  
Roy Mackey - WVDOH

Ricky McCoy - WVDOH  
Charles Moore - WVDOH  
Jim Pyles - WVDOH  
Brian Reid - WVDOH  
Randy Reid - WVDOH  
Ricky Richards - WVDOH  
Keith Scherrick - WVDOH  
Milton Shaner - WVDOH  
Davis Sheppard - WVDOH  
Michael Shremshock - WVDOH  
Randy Shuman - Consultant  
Chris Sowards - WVDOH  
Doug Swain - WVDOH  
Melissa Thompson - WVDOH  
Ronald Tice - WVDOH  
Jeff Whipkey - WVDOH  
Ralph Wix - WVDOH

**AND EVEN MORE GRADUATES. WE ARE PROUD OF YOUR ACCOMPLISHMENTS!**



*Group shots of our Princeton Graduates*

Rodney Joe Adkins - WVDOH

Michael Allen - WVDOH

Barry Bailey - WVDOH

Wayne Bailey - WVDOH

Bob Ball - City of Oak Hill

Les Ball - WV Parkways

Shawn Basham - WVDOH

Terry Basham - WVDOH

Duane Blevins - WVDOH

Rick Braun - WVDOH

Keith Boyd - WVDOH

Rodney Brooks - City of Ronceverte

Jim Coughlin - WVDOH

Larry Clement - WVDOH

Ray Clendenin- Beckley Sanitary Board

Morris Clyburn - WVDOH

Bill Cockerham - WVDOH

Barbara Craghead -WVDOH

Wayne DeBoard - WVDOH

Bo Ellis - Beckley Sanitary Board

Eric Elmore - WVDOH

Victor Fitzwater - WVDOH

David Goddard - WVDOH

Herbert Hall - WVDOH

Kenny Hanna - WVDOH

Dexter Hatcher - WVDOH

Edward Haynes - WVDOH

Diane Kelley - WVDOH

Donnie Lambert -WVDOH

Todd Lester - WVDOH

Darrell Long - WVDOH

Richard Martin - City of Oak Hill

Clint Mason - City of Oak Hill

Lewis McComas, Sr. - WVDOH

C.H. Meade- Beckley Sanitary Board

John Midkiff - WVDOH

Dave Miller - WVDOH

Billy Morgan - WVDOH

Chris Murphy - City of Oak Hill

Eric Mutter - WVDOH

Harold Neely - WVDOH

Billy Phillips - WVDOH

Carl Powell - WVDOH

Alan Reed - WVDOH

Andrew Reed - WVDOH

Dwight Reed - WVDOH

Charles Shrader -WVDOH

Bryon Shrewsberry- Beckley Sanitary Board

Ronald Smith -WVDOH

Franklin Stinson - WVDOH

Lonnie Taylor -WVDOH

James Thacker - City of Ronceverte

Johnny Vass - WVDOH

Rick White - WVDOH

Gary Williams - WVDOH

Walter Worrell - WVDOH

David Workman - WVDOH



## FROM STREET SUPERINTENDENT, TO CITY MANAGER AND BEYOND

by Mike Blankenship



**Richard Martin**

Richard Martin, City Manager of Oak Hill, is a recent graduate of our Roads Scholar Program, graduating this past February. In addition to attending Roads Scholar classes, Richard has also participated in several of our workshops. Richard is the first City Manager to ever attend, and more importantly, complete our Roads Scholar Program! Therefore, we decided an interview with this unique individual was much deserved.

**Mike:** So how does one go from being Street Superintendent to City Manager?

**Richard:** It's funny you should ask, because I was also recently appointed to Interim Sanitary Board Manager, in addition to being City Manager. I guess I'm always in the right place at the right time. I started working for the City of Oak Hill in 1990, when the City Manager, Tom Oxley, hired me as Special Projects Coordinator. I worked on maps for sewer line extensions, paving projects, and drainage projects. When the Street Superintendent stepped down, the City Manager asked me to take that position. Later, when the City Manager left, I was named Interim City Manager, which turned into City Manager. I've been lucky in working with a lot of great people, whom I've gained valuable experience and knowledge from.

**Mike:** What did you do prior to coming to Oak Hill?

**Richard:** I'm from Alderson, in Monroe County. I started out with the WV Division of Highways in construction in District 9, Ronceverte, where I worked

with Tom Oxley. One of the projects I worked on was Corridor L, U.S. 19 through Fayette County. That's when I started to like this area, and I eventually met my wife here. Tom and I then worked with Gates Engineering and Stafford Consultants. Tom then took the City Manager position with Oak Hill, and I joined him 3 years later.

**Mike:** How did you first get involved with T<sup>2</sup> Center activities, and how has our program helped you and the City of Oak Hill?

**Richard:** Right after I became Street Superintendent, I received a brochure in the mail about the Roads Scholar Program. We attended courses in Beckley, and I've been sending employees to your training ever since. I want all of my employees to participate in the program. I don't know of any other training program where you get such quality information, well organized and well presented, and it's all the things you want your employees to learn. My guys take the Roads Scholar Program seriously, and they refer back to materials that you provide to them in class. The work zone sign package we received from the Center was great - we weren't doing anything right prior to receiving that package and the training! Also, we are looking into using flowable fill after learning about this backfill technique from your class.

**Mike:** So why have you continued taking our courses, even though you are now City Manager?

**Richard:** In addition to the new things I learn in the classes, you may forget things, and it's good to attend the classes as a review. Also, I think that by showing my employees that I'm interested in the courses, they will be more interested also.

**Mike:** What unique challenges do you face as City Manager?

**Richard:** Everything! The difficult part is doing the needed work with limited finances. We've been able to accomplish

things mainly because we have lots of knowledgeable people with lots of experience. Also, we have a good, hard-working city council. I try to always treat my employees well, because you're only as good as the people who work for you.

**Mike:** What are some recent or future projects the City has undertaken?

**Richard:** We just completed an \$89,000 sidewalk project in front of city hall to repair and meet ADA requirements. We have a \$75,000 sidewalk project now, and after July 1, a \$130,000 sidewalk project. These projects are using city funds. We have also received a \$144,000 Transportation Enhancements grant for new sidewalks near the high school. We just completed a 12-year program to pave all of the City's streets. We have a \$1,500,000 drainage project to help prevent flooding, which is in the final design stage. Next year, we plan to build the council chamber on the ground floor of city hall to meet ADA requirements. We have a new hotel, new businesses and restaurants, and the local hospital was recently purchased and will be changing from non-profit to profit status, bringing additional funds to the City.

**Mike:** Sounds like a lot of things are happening in Oak Hill. Thank you for taking time out of your busy day to talk to me.

**Richard:** Thank you for all you've done to help us through your Center. Stop by next time you're passing through and I'll show you some of our projects.

**Mike:** It's a deal!

## NEW VIDEOS ON HAZARDOUS TREES

The Center has just received two new videos, dealing with tree management, in our library. Both provide valuable information about tree management and potential hazard trees.

*“Managing Trees for Public Safety: An Arborist’s Guide,”* 36 minutes,  
by International Society of Arboriculture, 1996

Objective of the video is to provide arborists and urban foresters with basic information to evaluate trees for failure potential. Tree conflicts with public activity, tree defects and their indicators, tree inspection tools and procedures and treatments for defective trees are discussed. Based on the premise that arborists should consider the hazard potential of every tree with which they work in the urban environment since valuable property and trees as well as lives are at stake.

*“Managing Trees for Public Safety: The Role of Landscape Maintenance Personnel,”* 17 minutes,  
by International Society of Arboriculture, 1996

The responsibilities of landscape maintenance personnel regularly place them in close association with community and landscape trees. With training and experience, they can effectively monitor trees for visible evidence of potential hazards. Objective of this video is to introduce groundskeepers, roadway maintenance personnel and others who work in urban and community landscapes to recognize basic defects in trees that can lead to failure. In particular, the video discusses tree defects and their indicators, the influence of landscape maintenance practices on trees and actions to take to reduce the risk of tree failure.

Videos, publications, and CD’s are available from our lending library for a period of two weeks at no charge. To borrow material, please contact Kim at 304-293-3031 x 2612 or e-mail [kcarr@wvu.edu](mailto:kcarr@wvu.edu).

## CLICK, LISTEN, AND LEARN

Imagine training your entire staff on today’s hot topics for only \$125 per session right in your own facility! Here’s how it works: with full-time educators from the national Local Technical Assistance Program (LTAP) coupled with the American Public Works Association’s (APWA) audio-web based conferencing format, we are able to bring America’s finest professional road and bridge instructors directly into your facility.

APWA’s Click, Listen, and Learn format takes advantage of technology already sitting on your desk: a speakerphone and a PC with an Internet connection. Participants receive the audio by phone and interact with the visual presentation via the web. Every session will be an interactive, information packed, no frills experience compacted into a two-hour time frame. Each session includes a downloadable workbook to be duplicated for each participant plus interactive question-and-answer availability throughout.

Don’t miss this remarkable opportunity. Check out the following web site to obtain additional information on these topics: <http://www/apwa.net/education>. Upcoming courses include Conflict Solving for the New Supervisor, presented by David Grouchy, Director of the Louisiana LTAP, May 21; Implementing GASB: 34-What is Means to You, presented by William Mobbs, PE of Cornell University, Local Roads Program, July 17; Effective Use of Chemicals and Abrasives for Winter Road Maintenance, presented by Don Walker, Director of the Wisconsin LTAP, October 29; and finally our very own Mike Blankenship, of the WV T<sup>2</sup> Center will be leading a session on Risk Management and Tort Liability on the Roadways. This workshop is scheduled for December 5, 2002.

The \$125 registration fee covers everyone at your site. Your staff can gather around a desktop or take advantage of a conference room setting. If you have any questions, just e-mail [mblanken@wvu.edu](mailto:mblanken@wvu.edu) or call Mike at 304-293-3031 x 2612. And don’t forget to keep these upcoming courses in mind when looking for convenient, high quality training.

## WE WANT TO KNOW

*We are always looking to improve our program to better serve your needs. The T<sup>2</sup> Center welcomes any ideas, comments, or suggestions you have regarding our program.*

*To provide the Center with feedback, or to make changes to your mailing address, please fill out the following form and fax it to Kim at 304-293-7109, email to [kcarr@wvu.edu](mailto:kcarr@wvu.edu), or mail to WV T<sup>2</sup> Center, WVU, PO Box 6103, Morgantown, WV 26506-6103.*

1. Please list information you'd like to receive:
2. Please provide us with training workshop suggestions that would benefit you and your agency.
3. Please list topics for publications, videos, and/or cd-roms that you would like the Center to obtain for our lending libraries.
4. Please list any additional comments on how the T<sup>2</sup> Center could better serve you.
5. Please fill out the following to update your mailing information or to request information.

Name: \_\_\_\_\_

Job Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

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



As we approach the middle of spring, thoughts often turn to graduation as family or friends complete academic requirements of one sort or another. This issue, we are pleased to feature a special group of “graduates,” our recent large class of West Virginia Roads

Scholar graduates. I congratulate all of these professionals for their dedication, effort and commitment to maintaining their competence. Of special note are the WVDOH District 10 Construction personnel who attended the Roads Scholar courses offered in Princeton during January and February. They earned 30 hours of instruction towards their certification program continuing education requirements. Participation in the classes aided in receiving promotions and

15 percent pay raises! Highlighted elsewhere in this issue is Richard Martin, a Roads Scholar graduate who has advanced from Street Superintendent to City Manager in Oak Hill. We are proud of all of our graduates. Let’s encourage individuals and agencies who are not participating in the program to enroll so they can expand their knowledge and improve their skills.

Many of our graduates ask “Where do we go from here?” in terms of continuing professional development. Although the process is taking more time than we would like, our Roads Scholar II program is being developed. Watch for formal announcements about these courses in the near future.

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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with others.

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- Public Works Dept.
- Road Crew
- Managers
- City Engineers
- Mayors
- Others

