

# t r a n s p o r t a t i o n

# TRACKS

Technology Transfer Newsletter

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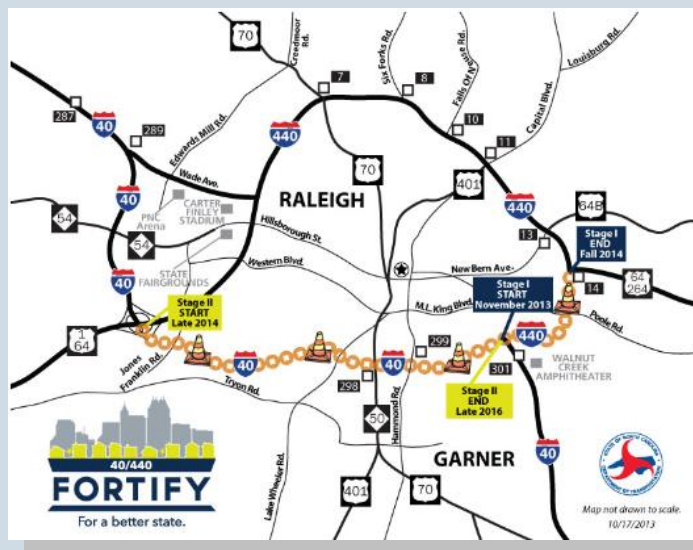


## About Fortify

The southern portion of I-40/I-440 in Raleigh, NC is 30 years old and needs repair. More than 100,000 vehicles travel this stretch of highway each day, putting a great deal of stress on the road's surface. Fortify is part of a 10-year plan to strengthen North Carolina's roadways and alleviate traffic congestion in the Triangle. NCDOT's goal is to fortify the roadway for safer, more efficient travel for everyone who travels through this busy section of highway. The project is broken out into two phases:

### Phase I

Phase I began in late November of 2013, this phase extended from east of the I-40/I-440/US 64 interchange (Exit 301) to just north of US 264/Knightdale Bypass (Exit 14). Two lanes remained open in each direction to ease traffic congestion during this phase, which is scheduled for completion in the summer 2014



### Phase II

This phase is slated to begin in late 2014, and includes the southern portion of I-40. Construction extends from I-40 west of Jones Franklin Road to east of the I-40/US 64/I-440 interchange (Exit 301). Three lanes are planned to remain open in each direction during this phase, which should be completed by August 2016.

Follow the progress on <http://www.ncdot.gov/fortifync>

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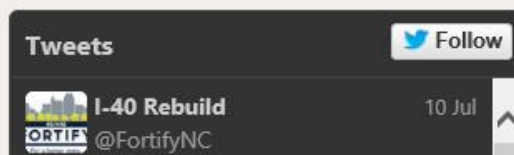
NC State University's  
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## *AASHTO Journal March 2014 Pedestrian Deaths Declining for First Time in Years, Preliminary 2013 Data Say*

According to a report released Wednesday by the Governors Highway Safety Association, the number of pedestrian fatalities across the country is declining for the first time in years.

In analyzing pedestrian fatality data, GHSA found that the number of pedestrian deaths fell 8.7 percent in the first six months of 2013 when compared with the first six months of 2012 (declining from 2,175 deaths in January through June 2012 to 1,985 during the same six-month period in 2013). The decline is the first in year-to-year pedestrian fatality rates since 2009.

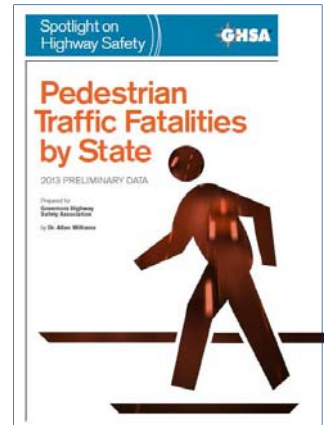
GHSA says "it is challenging to explain" the drop in pedestrian fatalities for the first six months 2013, but that the decrease is "consistent with the National Traffic Safety Administration's early estimate of a 4 percent drop in total motor vehicle deaths" for the first half of 2013. GHSA also said the drop is a credit to using "a combination of engineering, education and enforcement to combat the problem."

Annual pedestrian fatalities had increased by 15 percent nationwide between 2009 and 2012, a concerning trend, as all other road-related fatalities experienced a 3 percent decline through those three years.

The data also show that those states experiencing the higher pedestrian death numbers are those with larger populations and large cities. In the first six months of both 2012 and 2013, California, Texas, and Florida accounted for about a third of all reported pedestrian fatalities. The lowest percentages of pedestrian fatalities are in more rural states such as South Dakota (2 percent), North Dakota (4 percent), and Wyoming (5 percent).

"The preliminary findings are good news, but it's too soon to celebrate," said GHSA Chairman and Tennessee Office of Highway Safety Director Kendell Poole in a statement. "Recognizing that the safety of all roadway users is a priority for the association and our members, we must remain focused on pushing the numbers down in all 50 states. With distraction an increasing issue for both pedestrians and motorists, pedestrian safety continues to be a priority in many areas of the country."

GHSA's 17-page report, "Pedestrian Traffic Fatalities by State: 2013 Preliminary Data" is available at link below.



[http://ghsa.org/html/publications/pdf/spotlights/spotlight\\_ped2013.pdf](http://ghsa.org/html/publications/pdf/spotlights/spotlight_ped2013.pdf)



### *Advanced Construction Inspection for Public Works Projects*

(12 PDH credits)

**October 9-10, 2014**

232 Matthews Station Street, Matthews, NC

This course is designed and aimed at the more experienced field representative or project owner's representative. It is recommended that attendees should have at least 5 years work experience in this environment or have attended the "Introduction to Construction Inspection in Public Works" offered by ITRE and APWA.

This class will cover subjects of interest for anyone who administers roadway construction projects. The first day of class instruction will cover: Construction Administration the owner's role, contract award and execution, bonds and insurance, responsibilities of the on-site representative, planning and managing construction activities and prosecution and progress of the work. The second half day will cover materials testing and acceptance, pavement milling and alternative resurfacing options such as micro-resurfacing, nove chip slurry seal and others.

Register online at <http://northcarolina.apwa.net/EventDetails/3133>

## Proven Countermeasures for Keeping North Carolina Roads Safe

Over the past four years, highway fatalities and serious injuries have declined considerably - from 41,259 in 2007 to 32,885 in 2010. Highway safety programs across the country played a major role in that decline by analyzing where safety improvements were needed and by utilizing many of the nine safety countermeasures that we worked with your Division Offices to collectively advance. Those countermeasures are contained in the 2008 "Guidance Memorandum on the Consideration and Implementation of Proven Safety Countermeasures (<http://safety.fhwa.dot.gov/policy/memo071008/>)." Our efforts in advancing those countermeasures have paid dividends.

Those highway safety programs use a data-driven approach to safety improvements with countermeasure selection based on analytical techniques. Ultimately, the consideration and application of proven countermeasures is most effective through this approach. Our partners should continue to strengthen their evidence-based decision-making processes, as highlighted in the Highway Safety Manual, and systemic planning approaches to make improved safety investment decisions. We will continue to provide guidance and technical assistance to encourage these practices. We will also continue to research, identify and advance proven safety countermeasures and to provide those countermeasures to you and our partners so they can be integrated into this approach and used to help save lives and prevent serious injuries.

This guidance provides you with a revised list of research-proven countermeasures that supersedes the 2008 guidance. Through our collective efforts, many of the nine safety countermeasures in the 2008 guidance are thoroughly integrated into the options the States consider as they address their safety issues. However, some have not reached that level of wide spread application. Accordingly, some of the countermeasures from the 2008 guidance were brought forward with the new ones we've added. As you so successfully did with the 2008 guidance, we encourage you to advance these safety countermeasure options with your State DOT counterparts.

The new list of proven safety countermeasures includes:



## FREE Countermeasures Classes at ITRE

NC LTAP is offering several free, 4 hour training sessions across the state to discuss the Nine Proven Countermeasures and how they can be applied in North Carolina.

This is the same training that was provided last year with great success.

You must register to attend.

Click link below for dates and locations

<http://www.itre.ncsu.edu/LTAP/education/selection.asp#LTAP-PCRS>

Or contact Bill Woods

[bill\\_woods@ncsu.edu](mailto:bill_woods@ncsu.edu)

If you would like to host an NCLTAP training class in your city or town, contact Linda Collier, [linda\\_collier@ncsu.edu](mailto:linda_collier@ncsu.edu)



## Intelligent Compaction

On April 3, 2014, FHWA's Every Day counts program was focused on Intelligent Compaction. Compaction is one of the most important processes in roadway construction. This process is needed to achieve high quality and uniformity of pavement materials, which in turn ensures longer-lasting support, stability and strength. Conventional compaction equipment and processes can result in inadequate or inconsistent material density, which can contribute to premature deterioration and shorter embankment and/or pavement service life. Deploying new compaction rollers with Intelligent Compaction (IC) capabilities can result in more uniform material density and improved operations efficiency by reducing the number of passes needed to obtain specification density.



To learn more about Intelligent Compaction, click:  
[http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/pdfs/edc\\_ic.pdf](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/pdfs/edc_ic.pdf)

## James Martin Recognized at APWA-NC Conference

James Martin, NC LTAP Director, was recognized at the 2014 APWA-NC Past President's Dinner at the State Chapter Conference and Exposition in New Bern in June for his service to the chapter as Past President. James' duties as Past President included attending board meetings, serving as chairman on the nomination committee and planning the 2014 Past President Dinner. There were more than 100 attendees at the semi-formal Past President's Dinner - including 11 past presidents, who enjoyed catching up with each other while making new APWA friends .



## Get the Picture!

by Timothy B. Baughman, PE

### So what's wrong here?



Those of us in the work zone safety business have always been concerned with road user behavior. Driver speeding, impairment, confusion, and inattentiveness have made road work one of the most dangerous professions in the country. When I ask participants in my workshops what they see motorists in their work zones doing except driving, I have always gotten a long list: talking on the cell phone, eating, drinking, grooming, gawking, looking at a map, reading, fussing with the kids in the back seat, arguing with - sorry, I mean talking with your spouse. However, beginning just a few years ago, texting has made it to the top of my list. So if we hold these truths to be self-evident, that it is obvious for worker safety that road users need to be attentive and remain focused when driving through our work zones, shouldn't our worker force be attentive and remain focused as well - especially since drivers lives are in our hands?

If you have any questions or comments about worker safety and work zone traffic control, give me a call at (919) 515-8654, or e-mail me at [tbb@ncsu.edu](mailto:tbb@ncsu.edu).

## *West Virginia University Professor Leads National Effort to Reduce Bridge Construction Costs, Design Time*

Karl Barth, Samples Professor of Civil and Environmental Engineering at West Virginia University, has spent most of his career working in the steel bridge industry. Now, he's bringing that experience to bear in the Mountain State, working to improve bridge infrastructure and develop design innovations.

Barth serves as the technical director for the Short Span Steel Bridge Alliance's Bridge Technology Center. The SSSBA is a group of bridge and buried soil steel structure industry leaders who provide educational information and design tools for the cost-effective design and construction of short span steel bridges in installations up to 140 feet in length.

The American Society of Civil Engineers 2013 Report Card for America's Infrastructure graded the condition of bridges in the United States as a C+. Approximately one-half of those bridges are short span bridges, and most are owned and maintained by local governments.

According to Barth, steel can be more cost effective, sustainable, lighter and more aesthetically pleasing than concrete for short span bridge construction. Steel can be less expensive because fewer girders may be required for the project, most city and county governments can use smaller cranes to install the lighter steel beams and in many cases, local work crews can be utilized.

In 2012, the SSSBA launched eSPAN140, a free online tool that provides standardized short span steel bridge designs and connects bridge owners with SSSBA member companies that can take the project from design to completion. By using standardized designs and making available specific contact information for companies that can complete the project, the service provided by eSPAN140 speeds up the time it takes to construct the bridge and cuts down design and construction costs. Barth and a team of 30 experts from the steel and bridge construction industries reviewed more than 3,000 designs over several years during the development phase of eSPAN140.

"What eSPAN140 does is allow county engineers to go online and input some very simple geometric property information and from the standard designs we've developed, receive a set of preliminary bridge plans," explained Barth. "Now they have a way for getting a steel solution on the table in less than five minutes, where before it would have taken several days and additional personnel.

"When looking at short span bridges, most situations do not require complex designs," said Barth. "Therefore, the standardized plans provided by eSPAN140 can greatly reduce the amount of time required to design a short span bridge."

The SSSBA has worked in conjunction with the Federal Highway Administration to bring this tool to local and state governments, including West Virginia. The focus is on prefabricated bridge elements and systems, or PBES. Fabricating pieces off-site in a controlled environment usually yields a better product than if they are pieced together in the field.

"With PBES, you're simply putting components together. This can take a matter of days, as opposed to weeks or months," said Barth. "We've been working with the West Virginia Department of Transportation to develop a program to implement these standards for accelerated bridge construction, which will save taxpayers money and produce a quality infrastructure that is robust, economical and serviceable."

He estimates that more than 1,000 bridges in West Virginia could be a fit for this technology. Most of these bridges are found on county roads where cars must traverse a small ravine or creek.

Through the West Virginia Division of Highways and the FHWA, Barth is also working on projects to research other areas of bridge behavior and expand this technology. He is leading some of these efforts through WVU, allowing graduate students to participate in groundbreaking research while providing them with practical field experience as well.

"Nobody has fully researched the behavior of these prefabricated bridge elements and systems, so from an academic perspective, there is a whole world of things to explore in structural behavior," Barth explained. "We've had a number of graduate students associated with these projects—from analytical modeling to lab testing, to being out in the field and monitoring bridges. We're exposing our students to a wide variety of applications in the bridge-building field that they can take with them into the workplace."

## *Equipment Safety Videos: List of online safety videos compiled by Minnesota LTAP*

Part-time, seasonal, and new employees need to be trained—and quickly—but many agencies struggle to find the time to do it. One alternative is training videos. As a start, Minnesota LTAP's librarian, Marilee Tuite, found the following videos about bobcats, forklifts, dump trucks, bulldozers, and graders.

### ***Bobcats***

Source: Bobcat Company has a YouTube channel with several videos under "Bobcat Operator Training." Bobcat Company also offers operator training course kits.

### ***Forklifts***

#### ***"Forklift Operation"***

Source: Utah LTAP's YouTube channel; produced by Utah DOT ca. 2000

Length: 13:10

Summary: goes over operations, troubleshooting, and basic preventive maintenance

### ***Graders***

#### ***Operators Pre-Start Motor Grader Inspection (6-part series)***

Source: Ohio LTAP Center's YouTube channel; produced by Texas Engineering Extension Service, 2009

Length: each part is about 13 or 14 minutes

Summary: This training video focuses on the operator's pre-start inspection (sometimes referred to as a pre-start "walk-around") of the motor grader. The information presented in this video is meant only as a training aid and does not cover all the different aspects of operating and inspecting a motor grader. This video presents generic information and it is important to follow the specific instructions, operator's manual, and information provided by the manufacturer of the equipment. [See also: Featured Videos from the Ohio LTAP Center's YouTube Channel](#)

#### ***Motorgrader Operations Part 1***

Source: Utah LTAP's YouTube channel; produced by Utah DOT (date unknown)

Length: 18:44

Summary: Part 1 covers basic info and startup and shutdown procedures "from the operator's point of view."

#### ***Motorgrader Operations Part 2***

source: Utah LTAP's YouTube channel; produced by Utah DOT (date unknown)

Length: 16:54

Summary: Part 2 covers blade positions and maneuvering.

#### ***Motorgrader Operations Part 3***

Source: Utah LTAP's YouTube channel; produced by Utah DOT (date unknown)

Length: 18:45

Summary: Part 3 covers operating techniques in actual work situations.

#### ***Gravel Road Maintenance: Meeting the Challenge***

Source: Minnesota LTAP, 2006

Length: 20:54

Summary: This video details grader operation, preparing surfaces, and dealing with situations of improperly prepared roads. It also discusses recurring problems.

### ***Dump Trucks***

#### ***Dump Truck Operation Part 1***

Source: PublicResourceOrg's YouTube channel; produced by Utah DOT (date unknown)

Length: 37:23

Summary: covers operation and daily check/maintenance, startup and shutdown procedures

#### ***Dump Truck Operation Part 2***

Source: PublicResourceOrg's YouTube channel; produced by Nebraska Dept of Roads (date unknown)

Length: 18:56

Summary: covers basic maneuvering, dump box operation, shutdown

### ***Bulldozers***

#### ***Bulldozer preventive maintenance***

Source: PublicResourceOrg's YouTube channel; produced by Utah DOT (date unknown)

Length: 10:48

Summary: cover periodic maintenance (PMA) of a bulldozer, including checking the oil, inspecting the gasket, etc.



## On the web

### *Happenings from the Intersections Program*

By: Jeffrey B. Shaw, P.E., FHWA Office of Safety

<http://safety.fhwa.dot.gov/newsletter/safetycompass/2014/winter/#s8>

### *Maintaining Traffic Sign Retroreflectivity*

(updated in 2013 to reflect current MUTCD compliance dates)

[http://safety.fhwa.dot.gov/roadway\\_dept/night\\_visib/policy\\_guide/fhwasa07020/](http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/fhwasa07020/)

The FHWA Retro Team has recently updated the Traffic Sign Retroreflective Sheeting Identification Guide based on newly available materials. The updated guide is available to view/print on our website at [www.fhwa.dot.gov/retro](http://www.fhwa.dot.gov/retro) under Sign Implementation Tools. The effort was undertaken with funding and participation from ATSSA and its members.

### *ADA Toolkit helps transit managers understand their responsibilities under ADA regulations*

The *ADA Toolkit* is an expansion of the ADA section of the *Transit Manager's Toolkit*, and it is designed to give transit managers information about what they are required to do, based on the service they provide, under ADA regulations. The toolkit contains links to the ADA regulations, as well as a variety of helpful resources. It also highlights new topics and developments that relate to the Americans with Disabilities Act.

- ◆ The ADA Toolkit addresses the following topics:
- ◆ New developments that relate to ADA
- ◆ ADA requirements by service type- fixed, demand response and deviated route/flexible
- ◆ ADA complementary paratransit
- ◆ Physical standards- vehicles and facilities
- ◆ Mobility device rule change
- ◆ Service animals
- ◆ Customer service and sensitivity
- ◆ Public meetings and outreach
- ◆ Rider information
- ◆ Resources- FTA circulars and guidance, guides and publications, reports, websites, and training options

Patti Monahan, Executive Director of National RTAP, says: "If you are a transit manager who has ever received questions about stop announcements, service animals or paratransit eligibility, you can turn to this toolkit to find resources and information about the ADA regulations that apply to your agency."

<http://webbuilder.nationalrtap.org/adatoolkit/ADAToolkit.aspx>

### *Mickey Mouse 1931 Traffic Troubles*

<http://www.youtube.com/watch?v=kNMPpJIRvXE>





## Let Us Know . . .

To update your mail information, add a colleague to the database or obtain information about the Roads Scholar Program,

Fax this sheet to 919-515-8898 or

email to Linda Collier [linda\\_collier@ncsu.edu](mailto:linda_collier@ncsu.edu)

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

Company/Organization: \_\_\_\_\_

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

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

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

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

email: \_\_\_\_\_

Check Appropriate items:

- Add/update to the NCLTAP listserv NCTROADS
- Send information about Roads Scholar program
- Send schedule of Training opportunities



### ***NCTROADS: A listserv that works for you!***

NCTROADS, the NC LTAP listserv, is an informal network for the exchange of news about current research, discussion of problems and solutions, request for advice and assistance, and announcements of upcoming conferences, events and training opportunities for transportation personnel.

Once you are subscribed, you can send a message all the listserv members at [NCTROADS@lists.ncsu.edu](mailto:NCTROADS@lists.ncsu.edu)



***To Subscribe:***

Send an email to [linda\\_collier@ncsu.edu](mailto:linda_collier@ncsu.edu) and ask to be added to NCTROADS

***To Post A Message (after you subscribe):***

Send an e-mail message to: [NCTROADS@lists.ncsu.edu](mailto:NCTROADS@lists.ncsu.edu)

Check out the online video library

<http://www.itre.ncsu.edu/LTAP/techAssist/videolibrary.asp>



## Registration Form

### North Carolina Local Technical Assistance Program

July - December, 2014

Register by Mail: Fill out a copy of this form and mail with a *check payable to NC State University*  
ITRE/NC State, Attention: Bill Woods, Campus Box 8601, Raleigh NC 27695-8601

By Email: [bill\\_woods@ncsu.edu](mailto:bill_woods@ncsu.edu)

Online: [www.itre.ncsu.edu/itremain/education/training\\_list.html#LTAP](http://www.itre.ncsu.edu/itremain/education/training_list.html#LTAP)

Sign Me Up	Date	Class Title	Location	RS/ARS	Cost
	July 21	Basic Work Zone Safety Training	Mooreville	RS	\$99.00
	July 22	Intermediate Work Zone Safety Training	Mooreville	RS	\$125.00
	July 23-25	Work Zone Traffic Control Supervisor	Mooreville	ARS	\$345.00
	July 29	Basic Work Zone Safety Training	Durham	RS	\$99.00
	July 30	Intermediate Work Zone Safety Training	Durham	RS	\$125.00
	July 31	Flagger Training AM	Durham	RS	\$69.00
	August 5	Basic Work Zone Safety Training	Edenton	RS	\$99.00
	August 6-8	Work Zone Traffic Control Supervisor	Edenton	ARS	\$345.00
	September 9	Trenching Competent Person	Raleigh	ARS	\$125.00
	September 19	Concrete: What? When? And How?	Raleigh	RS	\$150.00
	October 17	Confined Space Lockout/Tagout	Raleigh	ARS	\$125.00
	October 21	Asphalt Pavement Maintenance	Durham	RS	\$99.00
	October 22	Soils Fundamentals	Raleigh	RS	\$99.00
	October 23	Maintenance and Repair of Utility Cuts	Raleigh	RS	\$69.00
	November 6	Snow and Ice Control	Raleigh	RS	\$99.00
	November 7	Excavation Safety	Raleigh	RS	\$125.00
	November 12	Storm Water Hydrology	Raleigh	ARS	\$99.00
	December 1	Basic Work Zone Safety Training	Raleigh	RS	\$99.00
	December 2	Intermediate Work Zone Safety Training	Raleigh	RS	\$125.00
	December 3	Flagging Instructor RECERTIFICATION	Raleigh	ARS	\$125.00
	December 4-5	Flagging Instructor Training	Raleigh	ARS	\$175.00
	December 8	Flagger Training AM	Raleigh	RS	\$69.00
	December 10-12	Work Zone Traffic Control Supervisor	Durham	ARS	\$345.0
	December 16	Basic Drainage/ Roadway Drainage Maintenance	Durham	RS	\$99.00
	December 18-19	OSHA 10 Hour Safety Training	Raleigh	ARS	\$150.00

Confirmation letters with class detail will be **emailed** 2 weeks prior to the class. Dress is casual.

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

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

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

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

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

Email: \_\_\_\_\_

Supervisor's Name: \_\_\_\_\_ Title: \_\_\_\_\_

Confirmation email should be sent to: \_\_\_\_\_

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**2014 NC LTAP Advisory Board**

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 Russell Byrd, Carteret County  
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 Eric Keravuori, Town of Wake Forest  
 Magda Holloway, City of Sanford  
 Chris McGee, City of Raleigh



LTAP Links on the Web	
NC LTAP	<a href="http://itre.ncsu.edu/LTAP/">http://itre.ncsu.edu/LTAP/</a>
National LTAP/TTAP	<a href="http://www.ltapt2.org/">http://www.ltapt2.org/</a>
Federal Highway Administration (FHWA)	<a href="http://www.fhwa.dot.gov/">http://www.fhwa.dot.gov/</a>
Institute of Transportation Engineers (ITE)	<a href="http://www.ite.org/">http://www.ite.org/</a>
U.S. Department of Transportation	<a href="http://www.dot.gov/">http://www.dot.gov/</a>
NCSITE (NC Section of Institute of Transportation Engineers)	<a href="http://www.ncsite.org/NCSITE.html">http://www.ncsite.org/NCSITE.html</a>
North Carolina Department of Transportation (NCDOT)	<a href="http://www.ncdot.org/">http://www.ncdot.org/</a>
NCDOT Safety & Loss Control	<a href="http://www.ncdot.org/doh/safety/">http://www.ncdot.org/doh/safety/</a>
School of Government	<a href="http://www.sog.unc.edu/">http://www.sog.unc.edu/</a>

Transportation Tracks is published quarterly by the North Carolina Technology Transfer Center at the Institute for Transportation Research and Education (ITRE), North Carolina State University (NCSSU), in cooperation with the North Carolina Department of Transportation (NCDOT) and sponsored by the Federal Highway Administration (FHWA) through its Local Technical Assistance Program (LTAP). Center staff include: James B. Martin, P.E., Director; Linda Collier, Assistant Director and Newsletter Editor; and Bill Woods, Program Assistant.

To be added to the mailing list or to submit articles for the newsletter, contact the center at ITRE: NCSU Centennial Campus, Box 8601, Raleigh, NC, 27695-8601. Phone: (919) 515-8899. Fax: (919) 515-8899. Web site: [www.itre.ncsu.edu](http://www.itre.ncsu.edu). Address correction requested. Any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the findings, policies, or procedures of ITRE, NCSU, NCDOT, or FHWA.

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