Greetings from the new management team at the Indiana Local Technical Assistance Program (LTAP). Although there have been personnel changes, the Indiana LTAP remains your source for technical transportation assistance, training, handbooks, manuals and workshops. The current LTAP team is comprised of John Haddock and John Habermann.

Professor John Haddock became the LTAP Director in November of 2006 and has 18 years experience in pavements and pavement materials. He has been with Purdue as a teacher and researcher for over 7 years. Previously, John worked for the Asphalt Institute, the Indiana Department of Transportation-Research Division, the National Center for Asphalt Technology, and the Heritage Research Group. John’s pavement background as well as his experience in teaching short courses to industry and governmental groups will be a valuable asset to the Center.

John Habermann has been with the LTAP Center for 8 years and took over as the Program Manager in April 2007 and will now be managing the program on a day to day basis. He has assisted with technology transfer in the form of technical manuals, short courses, and seminars. John frequently delivers temporary traffic control and safety workshops, along with alternative road funding seminars.

As the year progresses, we hope to add a technology transfer engineer, a training specialist, a communication specialist, and an administrative assistant to the staff. If you are interested in any of the positions, or know someone who might be, please view the job descriptions on page 18.

As the Indiana LTAP moves forward, this is a good time to remind our readers of the Center’s purpose, vision and mission. We will continue to use these as our guide for the program.

Purpose
The LTAP was established by the Federal Highway Administration (FHWA) in 1982 in response to a recognized need for funding and technical support to the 38,000 communities that maintain local roads and bridges.
Indiana LTAP

Indiana Local Technical Assistance Program (LTAP) was established by the Federal Highway Administration (FHWA). The purpose of the LTAP program is to translate the latest, state-of-the-art road, highway and bridge technologies into systems usable by local highway agencies. LTAP is funded by FHWA, the local agency distribution of the Motor Vehicle Highway Account and Purdue University.

The Pothole Gazette is published quarterly by the Indiana LTAP office at Purdue University. It is distributed free to county, city or town road and street personnel, and others with transportation responsibilities.

Advisory Board

Chairman
Bill Haan, Executive Director, Indiana Association of County Commissioners

Vice Chairman
Gary Eakin, Town Manager, Town of Danville
County Commissioners
K.D. Benson, Tippecanoe County
Philip J. Estridge, Henry County
Joyce Poling, Monroe County
Ruth Shed, Tippecanoe County
Stephanie Yager, Brown County

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Lee W. Hoard, City of Delphi
Michael E. Fincher, City of Logansport

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Bruno Canzian, Manager, Project Assistance

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Dr. Robert Connor, Professor
Dr. Jon Fricker, Professor
Dr. Jason Weiss, Professor

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Indiana Association of County Highway Engineers and Supervisors
Jodi Coblentz, Cass County Engineer

Brett Cating, Montgomery County Highway Director
Indiana Street Commissioners Association

Rob Roberts, Town of Danville Street Superintendent
Indiana Association of City Engineers
Steve Ruble, City of Columbus Engineer

Ex. Officio Members of the Board
Phil Beer, LSI Consultants
Mike Bowman, Milestone Contractors

Jerrold Bridges, Madison County Council of Governments

Megan Miller, Indiana Association of Cities and Towns

Jim Olson, Jefferson County Engineer
Stephen Powell, AT&T

David Unkefer, FHWA, Indiana Division

Contact Us

Director, Dr. John E. Haddock, Ph.D., P.E.
Program Manager, John A. Habermann, P.E.
Vision Technology 1
1435 Win Hentschel Blvd., Suite B100
West Lafayette, IN 47906-4150
Phone: (765) 494-2164
Toll-Free: (800) 428-7639
Fax: (765) 496-1176
Website: www.purdue.edu/INLTAP/

Indiana LTAP Training Calendar 2007

Road Scholar Core Course #7
Temporary Traffic Control
June 5

Road Scholar Core Course #6
Basics of a Good Road
June 6

IACHES Annual Conference
Embassy Suites North
(at the Pyramids)
Indianapolis, IN

Road Scholar Core Course #10
Drainage
August 22

Indiana Street Commissioners Association Annual Conference
Holiday Inn Lakeview
Clarksville, IN

Transportation Expo and Snow Plow Rodeo
September 19-20

Road Scholar Core Course #1
Powers and Duties
September 19

Indiana State Fairgrounds

Concrete Pavement Workshop
November 8

University Inn
West Lafayette, IN

Road Scholar Core Course #9
Bridge Basics
November 28

Indian Association of County Commissioners Annual Conference
Sheraton Hotel and Suites
Indianapolis, IN

2008 County Bridge Conference
January 23-24

University Inn
West Lafayette, IN
The County Bridge Conference was held at the University Inn on January 24 – 25, 2007. Many thanks to our speakers and planning committee members. Indiana LTAP is always interested in hearing your suggestions for future topics.

**The Agenda**

**Day 1**

**Administrative Guidelines**  
John Weaver, INDOT

**Bridge Inspection Terminology**  
Michael J. Obergfell, USI Consultants

**Software Update**  
Eric Conklin, INDOT

**Coding Guidelines; Getting to Know the SIA Sheet**  
Jon Sera & Jeremy Brooks, Butler, Fairman and Seufert

**New Specifications for Bridge Inspections**  
Shay Borrows, FHWA (Webcast)

**Underwater Bridge Inspections**  
Michael J. Garlich, Collins Engineers Inc.

**Common Errors and Deficiencies**  
Bill Dittrich, Debbie Lewis, Gerald Nieman, John Samuelson, INDOT

**Calculation of Sufficiency Rating**  
Tyler Wolf, Beam, Longest and Neff

**Equipment and Safety Procedure**  
Mike Magner, FPBH, Inc.

**Day 2**

**Federal Highway Update**  
Keith Hoernschemeyer, FHWA

**Historic Bridge Program Update**  
Amy Squitier & Chad Moffett, Mead and Hunt, Inc.

**LRFD**  
Anne M. Rearick, INDOT

**New Specifications & Guidelines in Design**  
Tony Uremovich, INDOT

**Making Concrete Last Longer, Key to Attaining Improved Performance**  
Jason Weiss, Purdue University

**From Failure to Prevention**  
Michael J. Garlich, Collins Engineers, Inc.

Despite 17 inches of snow in West Lafayette and surrounding areas, many braved the weather to attend the annual Stormwater Drainage Conference at the University Inn on Thursday, February 15, 2007!

**The Agenda**

**Conflict Resolution**  
Margie Thomas, MAT Consulting

**Stormwater Facilities-Multijurisdictional Issues**  
Panel Discussion

**Geosynthetics**  
Steve Gayle, Mirafi & TenCate Geosynthetics

**Stormwater Drainage Manual Updates**  
Thomas Burke, CBBEL

**HEC-HMS, Expanding Example Problem**  
Thomas Burke, CBBEL (Computer Lab)

**Stormwater Utility Financing-Lessons Learned**  
Panel Discussion

**CPESC/CPSWQ Programs-What & Why**  
Christopher Burke, CBBEL

**Wetlands**  
Sarah Shaw, CBBEL

**Attendance History**

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93rd Annual Purdue Road School Luncheon

93rd Purdue Road School a Success!
by Karen Hatke, Program Coordinator, JTRP

All the counting is done and we are pleased to announce that 1,477 of you attended Road School this year!

The Opening Session on Wednesday began with an introduction to new INDOT Commissioner Karl Browning as he presented his state of the state report. Our featured guest speaker was Douglas Rose, Chief Engineer for the Maryland State Highway Department, who discussed Maryland's highly successful quality initiative that has become a role model around the country. The Opening Session also highlighted the signing of the new Indiana Partnership for Transportation Charter by representatives of ten local and state agencies and professional associations responsible for the Indiana transportation system. The Indiana Highway Quality Awards, which are sponsored jointly by the Federal Highway Administration and the Indiana Department of Transportation, were presented as well for four state and local highway projects completed in 2006. Our congratulations go out to all of the designers, engineers, and contractors for these award-winning projects! The traditional Road School Exhibitors Luncheon was again a popular event at noon, and the day concluded with the Annual Welcome Reception at University Inn, which was also well attended. We extend our thanks to all of the consultants and suppliers who participated in these events.

Throughout the next two days, there were 39 sessions, both highly technical as well as self-improvement-oriented. Our additional timely updates in the environmental, pavement, safety, and maintenance areas were also provided, as well as sessions dealing with improving communication and presentation skills. Our Road School Luncheon speaker was Joe Toole, Associate Administrator of the FHWA Office of Professional and Corporate Development in Washington, DC. In his talk entitled “Don’t Wait...The Future of Transportation is Now” Joe inspired us all to go out and nurture budding engineers in our midst...as early as kindergarten!

Road School is coordinated by the Joint Transportation Research Program (JTRP) and the Local Technical Assistance Program (LTAP) at Purdue University. A tremendous amount of time and effort goes into Road School planning. Road School’s Chairmen (Olson Distinguished Professor Kumares Sinha and Professor Jon Fricker) and Program Coordinator Karen Hatke would like to thank the 150 local and state officials, consultants, contractors, and university faculty and staff who participated as presiders and presenters this year, as well as the staff of JTRP and LTAP. Road School could not happen without you!

If you requested a Road School proceedings, it will be mailed to you by late May. If you did not order a proceedings, it will also be available on-line at http://www.purdue.edu/jtrp or you may contact us to obtain a CD copy free of charge.

See you at the 94th Road School in 2008!
2007 QUALITY ACHIEVEMENT AWARDS

Pavement Urban/Over $5,000,000

**Project Name:** R-26096-A, US 421/Michigan Road  
**Owner:** INDOT—Crawfordsville District, Doug Lawrence, Jay Harris  
**Contractor:** Rieth-Riley Construction Co., Inc., Larry Mills, Rodney Lemke  
**Designer:** Strand Associates, Inc., Bill Hawkins  
**Description:** This project was a complete reconstruction of US 421 (Michigan Rd.) from just North of I-465 to just North of SR 334. It demonstrated a high level of team work using formal partnering as laid out in this project’s Statement of Goals. It earned a quality assurance bonus for asphalt and concrete paving and substantial incentives for early completion dates. Overall the project substantially enhanced the expanding growth and development in the Zionsville area.

Pavement Rural/Under $3,000,000

**Project Name:** INDOT R-28091, SR-19 through Amboy, IN  
**Owner:** INDOT—Fort Wayne District, Jim Keefer  
**Contractor:** E & B Paving, Inc., Rochester, IN., Mike Korba, Tony Korba, Brian Rensberger, Gary McLeland  
**Designer:** INDOT—Fort Wayne District, Jim Keefer  
**Description:** The purpose of this project was to provide the citizens of the town of Amboy and motorists with a new road and improved storm water drainage that will last 20-30 years. A strict schedule was followed to allow local farmers access to the granary and residents access to their homes. E & B Paving also won the “Excellence in Concrete Pavement Award” from the American Concrete Pavement Assoc. for this project.

Special Projects/Over $2,000,000

**Project Name:** R-28529, McKinley Avenue, Phase 2  
**Owner:** Ball State University  
**Contractor:** E & B Paving, Inc., Muncie, IN., Brian Johnson  
**Designer:** Rundell Ernstberger Associates, LLC, Michael Sommer Butler, Fairman, Seufert, Inc., Chris Wheatly, Dan Isaacs  
**Description:** Phase 2 construction southeast along McKinley Avenue which runs through the Ball State Campus in Muncie was a drastic transformation which included a complete redesign of the existing road, sidewalks and culvert with a new road, sidewalks, pedestrian crossings, planted medians and a brick bridge which compliments the campus architecture.

Special Projects/Under $2,000,000

**Project Name:** SR 56 Bike/Pedestrian Facilities Project  
**Owner:** INDOT—Vincennes District, Sam Sarvis, Elliot Sturgeon, Bart Mueller, Rusty Fowler  
**Contractor:** JBI Construction, Inc., Tim Sigler, Harlan Metzger  
**Designer:** Vernardin Lochmueller & Associates, Inc., Keith Lochmueller, Mike Hinton, Jim Gulick  
**Description:** A State Transportation Enhancement Project that provides a safe and continuous bike/pedestrian path for the local community from which they can commute back and forth between town and the park. All adjacent property owners provided an easement across their respective properties that provided for the construction of the Bike/Pedestrian path.
2007 ROAD SCHOOL SPEAKERS
We would like to thank all of the speakers and panelists who volunteered their time and expertise.

Sara Slater-Atwater, IDEM

Dudley Bonte, Rieth-Riley Construction

Gerald Rawling, Consultant

Andrew Fitzgerald, INDOT Analysis & Planning

Sivas Beik, Christopher Burke Engineering

Sue Beesley, Bingham McHale LLC

Rick Drumm, FHWA Indiana Division

Jill Saligoe-Simmel, IN Geographic Info. Council

Tommy Nantung, INDOT Research & Dev.

Jerry Foust, NIRCC

Paul Harrison, Indiana State Police

Laurie Johnson, DLZ Indiana

Mark Bowman, Purdue, Civil Engineering

Jeff Shaw, FHWA Resource Center

Jeff Clanton, INDOT, Contracts Manager
2007 Purdue Road School Conference Attendance

Karl Browning, Commissioner, INDOT
Lance Meredith, KY Transportation Center
John Habermann, Indiana LTAP
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Mike Nielsen, Gov. Fixed Asset Services  
Kumares Sinha, JTRP  
Keith Bucklew, INDOT, Freight & Mobility
Indiana LTAP has a large selection of resource materials covering subjects such as: Highway Administration & Management; Roadway, Streets & Pavement Issues; Bridge Issues; Railroads, Railroad Crossing & Train Issues; Traffic Control & Highway Safety; Snow & Ice Control; Drainage & Stormwater; Right-of-Way Issues; and more.

To search for more publications, visit our website at: www.purdue.edu/INLTAP and click on “Resource Library”.

### PUBLICATIONS

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<td>2007 National Highway Institute Training Catalog</td>
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<td>Application of Geophysical Methods to Highway Related Problems</td>
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<td>Results from High-Performance Concrete Bridge Projects, Volume I: Final Report</td>
<td>Henry G. Russell, Inc.</td>
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<td>Expert System to Support Site Investigation for Safety Improvement</td>
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<td>Guide to Risk Assessment and Allocation for Highway Construction Management</td>
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<td>Highwya Salt And Our Environment</td>
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<td>(LTPP) Pavement Performance Falling Weight Deflectometer Maintenance Manual</td>
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<td>(LTPP) Manual for Falling Weight Deflectometer Measurements</td>
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<td>Low-Cost Treatments for Horizontal Curve Safety</td>
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<td>Material Property Characterization of Ultra-High Performance Concrete</td>
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<td>Optimized Sections for High-Strength Concrete Bridge Girders</td>
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<td>Road Diet Handbook: Setting Trends for Livable Streets</td>
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<td>Salt Storage Summary</td>
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<td>Shored Mechanically Stabilized Earth (SMSE) Wall Systems Design Guidelines</td>
<td>Folder Assoc., Inc, Collin Group,</td>
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<td>Structural Behavior of Ultra-High Performance Concrete Prestressed I-Girders</td>
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<td>Subsurface Imaging of Lava Tubes Roadway Applications</td>
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<td>The Lincoln Highway Forum - Vol. 14, No. 1</td>
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<td>The Public's Right To Wintertime Traffic Safety</td>
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Each state in the U.S. operates an LTAP center. Most of the centers are located at state universities, and many are collocated with University Transportation Centers (UTCs). There are also seven regional Tribal Technical Assistance Program (TTAP) centers which serve Tribal councils of government. LTAP centers enable local counties, parishes, townships, cities and towns to improve their roads and bridges by supplying them with a variety of training programs; new and existing technology updates; and personalized technical assistance.

Vision
The vision of the Indiana Local Technical Assistance Program is to be known and respected throughout the State of Indiana as the primary resource for training, technical assistance, and technology transfer for government and industry officials with local transportation related responsibilities, and to be known throughout the LTAP community as an innovative, aggressive, and productive participant.

Mission
The mission of the Indiana LTAP is to foster a safe, efficient, environmentally sound transportation system by improving the skills and knowledge of local transportation providers through training, technical assistance, and technology transfer.

Commitment
The new LTAP staff is committed to bringing customers the training and resources they have grown accustomed to receiving, including the Road Scholar Program, the email list serve, and our presence at annual conferences. The LTAP address and contact information will remain the same, but in the near future you will see a few updates to the web site and newsletter. As always, if you have a suggestion, we welcome hearing from you. On the back page of this issue is a suggestion form.

The LTAP staff would like to thank all of you for your continued support and encouragement and hope your spring paving and maintenance activities are off to a good start. If we can be of help, please let us know.

John E. Haddock
Director
John A. Habermann
Program Manager

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<tr>
<td>2007 County Bridge Conference</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Comprehensive Intersection Resource Library</td>
<td>FHWA</td>
</tr>
<tr>
<td>Core Curriculum Matrix Development</td>
<td></td>
</tr>
<tr>
<td>Driver Education Work Zone Awareness Program</td>
<td></td>
</tr>
<tr>
<td>Driver Understanding of Red Retroreflective Raised Pavement Markers</td>
<td>FHWA</td>
</tr>
<tr>
<td>Good Practices: Incorporating Safety into Resurfacing and Restoration Projects</td>
<td>FHWA</td>
</tr>
<tr>
<td>Guide Specifications for Local Governments</td>
<td>Asphalt Pavement Association</td>
</tr>
<tr>
<td>Guidelines for the Selection of W-Beam Barrier Terminals</td>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td>Indiana Map - Aerial photography - All 92 Counties</td>
<td>Indiana Geographic Information</td>
</tr>
<tr>
<td>INDOT Design and Construction Reference Guide</td>
<td>Indiana Department of</td>
</tr>
<tr>
<td>INDOT Construction and Design Reference Guide</td>
<td>Indiana Department of</td>
</tr>
<tr>
<td>LTPP Products Team Distress Identification Guides</td>
<td></td>
</tr>
<tr>
<td>Pavement Preservation Toolbox - Strategies for Preventive Maintenance Programs</td>
<td>Foundation for Pavement</td>
</tr>
<tr>
<td>Road System Traffic Safety Review</td>
<td>FHWA</td>
</tr>
<tr>
<td>The Second International Symposium on Transport Technology Transfer</td>
<td>FHWA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VIDEOS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Defensive Flagger: A Survivor’s Guide</td>
<td>TEEX</td>
</tr>
<tr>
<td>Defensive Flurring: A Survivor’s Guide - English &amp; Spanish versions</td>
<td>FHWA</td>
</tr>
<tr>
<td>Mutual Aid Programs</td>
<td>New Hampshire Public Works</td>
</tr>
<tr>
<td>Sign Maintenance and Installation</td>
<td>Colorado LTAP</td>
</tr>
<tr>
<td>The Indiana Crossroads Project - Our Next Generation of Highways &amp; Byways</td>
<td>Indiana Fiscal Policy Institute</td>
</tr>
</tbody>
</table>
The Road to Safety

Part I: Why Safety and Where Do We Start?

Rick O. Drumm, P.E., Federal Highway Administration - Indiana Division
Laurie D. Johnson, P.E., DLZ Indiana

Our Purpose

Many professions work at saving lives. Social workers and police try to reduce the number of homicides and suicides. A doctor's job is to heal people. Educators influence people's minds, inspire, and pass on life skills to survive. If any of these groups were to say that they work on the ninth leading cause of death, we would all consider that a worthy endeavor. But if they also said that they are trying to save the lives of the younger generations, that they are working to reduce deaths caused by the number one killer of people from age 5 through 34, then we may develop quite a bit of respect for that person. If you agree, look in the mirror. That person is you, the overseers of our highways. Yes, according to the Center for Disease Control (CDC) and the National Highway Traffic Safety Administration (NHTSA), the agencies who monitor such things, highway crashes are the leading cause of death for age groupings ranging from age 5 to age 34. For late teens, in the 16-20 age group, well over 1/3 of all deaths are caused by motor vehicle crashes, accounting for more than twice as many dying from this source as any other cause of death.

Since you are reading this publication, it is likely that you are involved in some way with providing a safe, efficient highway system for the traveling public in your jurisdiction. If that is so, you have the same responsibilities as that social worker, police, doctor, or educator. You are a potential lifesaver.

This article is the first in a series of four that will focus on highway safety. We will discuss numbers, why safety, and what your first step should be in this first article. After each article, we will focus on a particular countermeasure or two that have been found to be effective. This time, our focus is on improving safety on horizontal curves.

The State of Indiana

For Indiana as a whole, let us look at some of the data we can pull out of the crash database. State and local police log between 190,000 and 210,000 crash reports per year in Indiana. That is approximately one crash for every 20 licensed drivers. But since many of these crashes involve more than one vehicle, the number of drivers actually involved in a crash every year is at best 1 out of 15. Therefore, it is likely you know a number of people that have been in a motor vehicle crash in just the past year, this year, next year – every year. It may be a member of your family. It may even be you. This issue touches everyone. Let’s look at some other numbers for Indiana.

The fatality numbers for our state for the new millennium are as follows: (please no arguments about whether the new millennium started with 2000 or 2001)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>886</td>
</tr>
<tr>
<td>2001</td>
<td>909</td>
</tr>
<tr>
<td>2002</td>
<td>792</td>
</tr>
<tr>
<td>2003</td>
<td>833</td>
</tr>
<tr>
<td>2004</td>
<td>947</td>
</tr>
<tr>
<td>2005</td>
<td>938</td>
</tr>
</tbody>
</table>

(The fatalities for 2006 have not been finalized, but are likely to be around 900.)

This is an average of 884 per year for the first six years of the 2000’s. If you stop to think about it that means on average almost 2 ½ people die every day on Indiana’s highways, roads, and streets - 17 a week. It is rare to meet anyone that hasn’t been touched by the tragedy of death of a relative or close friend due to a highway crash. We can’t drive very far before seeing a cross, a roadside memorial signifying another person, or more, has died on our highways. Let’s remember, motor vehicle crashes are the number one cause of death for people in age groups from 5 to 34.
In addition to this tragedy is the number of injuries caused by highway crashes. For Indiana, the numbers for the past few years look like this:

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injuries</td>
<td>62,224</td>
<td>62,584</td>
<td>60,489</td>
</tr>
</tbody>
</table>

While some are relatively minor bumps and bruises, we all know that many of these injuries cause severe pain, disruption of life, and suffering for years, and often for the rest of one’s life.

**Countermeasures Focus**

As stated in the introduction, in each issue we want to describe one or two good countermeasures to consider.

As we will get into in later articles, obviously, we only want to apply these countermeasures at appropriate locations. If there are a high number of crashes that can be attributed to a certain cause, then a countermeasure that addresses this cause should be implemented.

*Horizontal Curve Countermeasures – Improving Sight Distance and Signing*

This time, we will discuss improving safety on horizontal curves. If a number of crash reports mention that the driver says something like, “I could not see other vehicle approaching” or, “I didn't realize the road curved... “, then significant warning of the change in alignment or adequate sight distance through the curve may be a problem. Visiting the site should confirm this. (We will emphasize the need for site visits in later articles.) Often, correction of horizontal alignment problems involves spending a large sum of money on a bigger improvement project to remove the obstacle and improve sight distance.

Frequently, though, low cost improvements can be completed and will have significant impacts on crash reduction. In the following “before” and “after” photos, it is easy to see the impact that clearing vegetation and placing chevron signs has on a driver’s ability to react appropriately to the roadway condition:

**BEFORE...**

The road starts to curve, but that is all that can be seen.

**AFTER...**

Clearing the vegetation on the inside of the curve greatly increases sight distance, giving the driver the ability to clearly see what is ahead. Chevron signs were already in place, but the second one is now visible.
More Statistics, Please

There is much to learn from highway crash statistics. Some of this data are interesting facts and some can be motivating in terms of actions you could take on your particular roads.

If we just consider fatalities, a number of enlightening statistics have been pulled out of national data.

- 25 percent of the people who die each year on the nation’s roadways are killed in motor vehicle crashes occurring at curves.
- About one in five non-intersection fatal crashes involves two vehicles crashing head-on.
- Eight percent of fatal crashes—more than 3,000 a year—involve crashes into trees.
- Individuals over age 65 account for close to 14 percent of all traffic fatalities—about 6,000 people a year.
- Nearly 25 percent of all fatal crashes occur at intersections, and about 70 percent of those are at unsignalized intersections.

Improving the statistics noted above can involve investing a lot of money on major infrastructure improvement projects, but implementing low cost solutions can also have a major impact on improving safety. Various industry studies show the following:

- Installing lighting at an intersection can reduce all night-time crashes by approximately 37%.
- Adding a white edge line reduces all crashes by 11% and fatalities by 15%.
- Adding appropriate warning signs on sections or in advance of intersections reduces crashes by 20-40%.
- Adding chevrons to a horizontal curve reduces all crashes by 35%.
- Clearing vegetation from sight distance triangles can reduce crashes up to 20%.

This is only a small menu of possible low cost improvements that can easily be implemented by local street or highway departments, at the same time providing significant crash reduction.

BEFORE...

Another beginning of a curve with no way of knowing what is ahead.

AFTER...

Clearing vegetation allows the driver to clearly see how much the road curves, the bridge and the narrower road ahead.

Clearing vegetation to improve sight distance has a very beneficial result by allowing the driver to see ahead and drive accordingly. If the trees or bushes are not on public right of way, coordination with land owners is needed. And although some may be resistant, many will want to help make our roads safer.
How do we approach highway safety? The first step, after agreeing to jump on board the safety express, is to find out where you are in terms of safety.

There is a saying that is attributed to some old Greek guy who said, “Know thyself.” We can modify that somewhat to say, “Know thy numbers.” Let’s put that another way, for those who consider the Old English phrasing to be Greek to them. **Know your safety numbers.**

As a manager or caretaker of roads in a city, town or county, it would be a very good idea, make that essential, to know how many fatalities, injuries, and crashes there are in your jurisdiction in a typical year. You can get this information from your law enforcement agencies, from the State’s crash database, or from various other sources. The State’s crash database has undergone a recent name change from Vehicle Crash Record System (VCRS) to Automated Reporting Information Exchange System (ARIES). This is to reflect the increase in uses for law enforcement to well beyond reporting motor vehicle crashes. Your local police or nearby State Police District are tasked with completing a crash report for crashes in their area. By law, they must submit the crash report to the State Police section that oversees the State’s crash database, as stated, called ARIES. By communicating with your local police or State Police District, you may be able to collect all the crash reports that occurred on your roads. The assimilation of data may be fairly significant, though. Instead, you may wish to get a summary of crash data from ARIES. At this point, local highway agencies do not have direct access to this database. This is why we suggest working closely with your local police or local State Police post who should have access. In the recent past, the LTAP HELPERS program manager could obtain the data for your jurisdiction. Recent personnel changes at LTAP have brought about an absence of someone in that position. When filled again, that person should be able to help with data. INDOT also has access to ARIES at both their central office and district offices. You can get the data in an Access Database, probably the best way in order to analyze the data.
So, step one: get the data for your jurisdiction and know where you are in terms of crashes, injuries and fatalities.

It will actually be a beneficial, additional step to know where your numbers fit in terms of typical or average values. For a county, for instance, it is easy to determine the number of fatalities and injuries in the county for each of the years from 2003-2005, and once the year is finalized, 2006. If one knows the estimated miles driven (a little more digging), the rate of fatalities or injuries per 100 million vehicle miles traveled can be derived. You may wish to also know what the fatality and injury rates are per population, commonly done in other countries. Reports are available through LTAP that show these values for each county in Indiana. Although the numbers are not broken down by jurisdiction at this point (state vs. county vs. city roads), the present data will give a picture of where your county is in comparison to other counties in the state.

**In Conclusion**

Again, we come back to the same two points we have stressed so far: 1) we all need to be very involved in improving highway safety, and 2) we should know where we stand in terms of basic safety numbers on our highways.

Next time, we will delve further into crash data. Once you have it, what do you do with it? How do you map it? Analyze it? Draw conclusions from it?

But for now, you have your assignment: Find out and determine how many crashes are in your jurisdiction in a typical year, and how many fatalities and injuries have resulted from them.

You may want to fill out this simple table:

<table>
<thead>
<tr>
<th>Jurisdiction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>2003</td>
</tr>
<tr>
<td>2004</td>
</tr>
<tr>
<td>2005</td>
</tr>
<tr>
<td>2006</td>
</tr>
<tr>
<td>4-year Average</td>
</tr>
</tbody>
</table>

Then post this at your desk to remind you of the task we all have ahead of us.

If there are other statistics – number of teenagers in these categories or number of older drivers or intersection or run-off-road impacts with trees – you think may be relevant to your jurisdiction, include those. But find out the numbers and put them in front of you.

This is the first step to improving safety on our roads – **Know thy numbers.**
<table>
<thead>
<tr>
<th>Page</th>
<th>Agency Type</th>
<th>Agency Name</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>FHWA</td>
<td>FHWA</td>
<td>Under “Office of Division Administrator”, add Dan Keefer, Quality Coordinator Phone: (317) 226-7478 Under “Office of Division Administrator”, add Max Azizi, Assistant Division Administrator Phone: (317) 226-7483 (serving in addition to Kathleen H. Quinn)</td>
</tr>
<tr>
<td>11</td>
<td>FHWA</td>
<td>FHWA</td>
<td>Under “Project Management Team North”, add Tony Perkinson, Planning/Environmental Specialist Phone: (317) 226-7479</td>
</tr>
<tr>
<td>28</td>
<td>INDOT</td>
<td>Greenfield District</td>
<td>Robert Rebling has retired. The new Planning &amp; Programming manager is Dwane Myers (317) 467-3465</td>
</tr>
<tr>
<td>43</td>
<td>MPO</td>
<td>Indianapolis MPO</td>
<td>Please note additional counties under this agency's jurisdiction are: Morgan, Shelby and Boone County</td>
</tr>
<tr>
<td>74</td>
<td>County</td>
<td>Delaware</td>
<td>Add Linda Garrett, Engineering Assistant, 100 W. Main Street, Room 309, Muncie, IN 47305 Phone: (765) 747-7785, Fax: (765) 747-9620, Email: <a href="mailto:lgarrett@co.delaware.in.us">lgarrett@co.delaware.in.us</a></td>
</tr>
<tr>
<td>75</td>
<td>County</td>
<td>Fayette</td>
<td>Correct phone number for Council Member Carol Russell is (765) 825-7410.</td>
</tr>
<tr>
<td>93</td>
<td>County</td>
<td>Jefferson</td>
<td>The new fax number for Jim Olson, Engineer and Darrell Gayle, Highway Supervisor is (812) 273-1345. The new fax number for Wanda Welsh, Highway Clerk is (812) 265-8955.</td>
</tr>
<tr>
<td>94</td>
<td>County</td>
<td>Jennings</td>
<td>New Highway Supervisor – District 3 is Danny Bowman.</td>
</tr>
<tr>
<td>102</td>
<td>County</td>
<td>Madison</td>
<td>Replace “Vacant” Council Member with Scott Tischler. Phone number remains (765) 683-9545 Please note the correct phone numbers: Council Member Buddy Patterson (765) 378-5345 Council Member Bill Savage (765) 552-8384 Add County Attorney James Wilson, 515 Main Street, Elwood, IN 46036, (765) 552-9878</td>
</tr>
<tr>
<td>108</td>
<td>County</td>
<td>Monroe</td>
<td>Please note the following title changes with the Highway Department Bill Williams – Director / Engineer Suzanne DeMoss – Highway Financial Manager Laura Lane – Highway Administrative Assistant Lisa Ridge – Highway Operations Manager</td>
</tr>
<tr>
<td>114</td>
<td>County</td>
<td>Orange</td>
<td>Correction: Council Member Eugene Pinnick address: 1699 So. Co. 650W. French Lick, IN 47432. Phone: (812) 936-2625.</td>
</tr>
<tr>
<td>115</td>
<td>County</td>
<td>Owen</td>
<td>New mailing address for Highway Department is: 2032 N. U.S. Hwy 231, Spencer, IN 47460</td>
</tr>
<tr>
<td>119</td>
<td>County</td>
<td>Porter</td>
<td>Address Correction: Please use the following address for David W. Schelling, Engineer, 1955 S. St. Rd. 2, Valparaiso, IN 46385</td>
</tr>
<tr>
<td>129</td>
<td>County</td>
<td>Shelby</td>
<td>Correction: Council Member, Thomas Debaum, phone (765) 525-9790, email address: <a href="mailto:tkdebaum@tds.net">tkdebaum@tds.net</a></td>
</tr>
<tr>
<td>144</td>
<td>County</td>
<td>Warrick</td>
<td>Add/Correction: Highway Superintendent is Samuel Roach, Assistant Superintendent is Jack Gore. Contact information remains the same for both positions. Highway Clerk Leva F. Hale has retired. New Highway Clerks are Paige Williams and Lynn Newlin. Name Correction: Engineer-Assistant is Noelle Momanie</td>
</tr>
<tr>
<td>171</td>
<td>City</td>
<td>Indianapolis</td>
<td>Title/Address/Fax number correction: Sherry Powell, Senior Project Mgr./Pavement Mgmt. &amp; Streetlighting, 604 N. Sherman Drive, Fax: (317) 327-2334. Address correction: Larry Jones, Transportation Administrator, 604 N. Sherman Drive Please note: The City County Bldg in Indianapolis is located on Washington Street.</td>
</tr>
<tr>
<td>179</td>
<td>City</td>
<td>Madison</td>
<td>New address for the Street Department is: 1215 N. Walnut Street, Madison, IN 47250</td>
</tr>
<tr>
<td>197</td>
<td>Town</td>
<td>Albion</td>
<td>New address for Town Hall: 211 E. Park Drive, P.O. Box 27, Albion, IN 46701. Change applies to all personnel.</td>
</tr>
<tr>
<td>277</td>
<td>Town</td>
<td>Orleans</td>
<td>Mike Dixon has been named new Town Superintendent, replacing the late Jim Stalker. Contact information remains the same. Add: Town Marshall Roy McFarland, 161 E. Price Ave., P.O. Box 146, Orleans, IN 47452 (812) 865-2222. Add: Town website <a href="http://www.town.orleans.in.us">www.town.orleans.in.us</a>.</td>
</tr>
<tr>
<td>288</td>
<td>Town</td>
<td>Roseland</td>
<td>Council Member Dorothy Snyder has retired. Her replacement is Ted Penn.</td>
</tr>
</tbody>
</table>
**Job Listings**

**TRAINING SPECIALIST**  
Indiana LTAP, West Lafayette, IN  

The Indiana LTAP is currently seeking to add a Training Specialist to its staff of professionals. Training Specialist duties include developing, directing, and assessing training programs presented to local transportation officials and other related professionals throughout Indiana and representing the Indiana LTAP at affiliate meetings and trade shows.

The successful candidate will have an M.S. degree in Civil Engineering and one year experience; or a B.S. in Civil Engineering plus 5 years experience; or no degree and 10 years experience in a local government agency transportation related position. Experience in a position for a local public agency with transportation-related responsibilities, or as a consultant or vendor that provides services and/or supplies to local public agencies is desirable. Experience in other fields of engineering may also be considered. Experience in providing training to transportation professionals is desired.

The Training Specialist is required to have strong oral and written communication skills along with knowledge of word processing, database development and management, spreadsheets, email, and the internet. An understanding of Indiana local government, knowledge and experience in state and local highway planning, design, operations, and maintenance is highly desirable.

Visit [www.purdue.edu/hr/employment](http://www.purdue.edu/hr/employment) for job listing and “how to apply”.

**RESEARCH ENGINEER**  
Indiana LTAP, West Lafayette, IN  

The Indiana LTAP is currently seeking to add a Research Engineer to its staff of professionals. Research Engineer duties include developing, promoting, and conducting technology transfer programs to provide training and implementation of the best practices for the operation of local roads and streets in Indiana. This will include the development of training materials and coordination with town, city, county, state, and federal officials, and University staff to enable these programs to be effectively presented throughout the state. Research efforts will relate to these technology transfer activities. The Research Engineer also makes decisions regarding the identification, demonstration, and education necessary to persuade local officials to adopt new or more efficient procedures.

The successful candidate will have an M.S. in Civil Engineering and 5 years experience; or a B.S. in Civil Engineering and 10 years experience; or must also be a licensed professional engineer. Prior experience in engineering, planning, and/or education is desirable.

The Research Engineer is required to have strong oral and written communication skills along with knowledge of word processing, database development and management, spreadsheets, email, and the internet. An understanding of Indiana local government, knowledge and experience in state and local highway planning, design, operations, and maintenance is highly desirable.

Visit [www.purdue.edu/hr/employment](http://www.purdue.edu/hr/employment) for job listing and “how to apply”.

**ASSISTANT ENGINEER**  
Vigo County  

Vigo County Government has an opening for an Assistant County Engineer. In this position generally accepted engineering and surveying techniques will be applied to a variety of situations. The work will require the use of judgment to ensure cost effectiveness and safety of projects. The role will require a broad knowledge of engineering functions related to roads, bridges, and ditch construction. Work is performed independently, but County Engineer is available to assist with unusual situations.

The qualified candidate must have the following:
- Bachelor’s degree in Engineering
- Registered Professional Engineer (P.E.) or Engineering-in-Training in the State of Indiana
- Must have a valid Indiana Driver’s License
- Proficient use of mathematical equations, surveying, and drafting equipment
- Ability to read and understand legal descriptions and blueprints
- Proficient computer skills
- Ability to provide advice and evaluate the work in progress of county contractors

Applicants may apply to:
Attn: Human Resources
Vigo County Commissioners’ Office
121 Oak Street
Terre Haute, IN 47807

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**Advertise a job listing or equipment sales for free in THE POTHOLE GAZETTE**

Send your information to lweicker@purdue.edu or fax to (765) 496-1176
PROJECT ENGINEER
Hamilton County, Surveyor Dept.

The Hamilton County Surveyor’s Office is accepting resumes for the position of Project Engineer. Individual will be responsible for designing and coordinating County drainage, construction, and reconstruction projects. Individual must have the ability to assess County program needs and effectively plan, design, coordinate, and oversee appropriate, cost effective drainage projects. Individual must possess a current Indiana license as professional engineer.

SCHEDULE: 8:00 a.m.-4:30 p.m., M-F
JOB CATEGORY: EXE B
APPROPRIATION: 101.044.1016
STATUS: Full-time
FLSA STATUS: Exempt

To perform this position successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed in this document are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Incumbent serves as Project Engineer for the Surveyor, responsible for designing and coordinating County drainage, construction, and reconstruction projects.

Duties:
Supervises and directs assigned personnel, including interviewing applicants, making hiring recommendations, planning/delegating work assignments, providing orientation, training and corrective instruction, and recommending personnel actions as needed. Organizes, plans and directs all aspects of drainage engineering projects. Prepares plans/specifications and bid documents for drainage reconstruction projects, including supervising/directing site surveys, analyzing watershed/drainage, drafting on computer, preparing contract documents, estimating costs, and soliciting bids. Designs projects to retrofit outdated storm water facilities to conform to current standards. Manages department engineering contracts, including monitoring costs, and ensuring projects adhere to schedules and standards. Responds to public complaints and requests regarding drainage issues as reported, including speaking with complainants, visiting problem sites, conducting feasibility studies, preparing and making public presentations and taking appropriate action to resolve valid complaints. Communicates with other counties, municipalities, utilities, and state and federal agencies in coordinating County and multi-jurisdictional projects, such as well head protection and clean water activities. Reviews proposed regulated drain design plans and makes appropriate recommendations to Surveyor to ensure compliance with policies/regulations. Conducts drainage studies on drainage shed basin. Assists in acquiring rights-of-way adjacent to construction projects as needed. Periodically assists in the preparation of drainage ordinances and revisions to drainage standards and policies as needed. Assists in preparing annual drainage improvement program. Periodically attends job-related seminars/training. Performs related duties as assigned.

Job Requirements:
BA in Civil Engineering or related field and minimum of four years of relevant experience. Possession of current Indiana license as professional engineer. Thorough knowledge of and ability to make practical application of federal, state and local regulations regarding drainage, and relevant hydraulic and civil engineering and construction principles and practices. Ability to make complex mathematical calculations, analyze survey and other data, and read and interpret detailed prints, sketches, construction plans, property records, and related legal documents. Ability to supervise and direct assigned personnel, including interviewing applicants, making hiring recommendations, planning/delegating work assignments, providing orientation, training and corrective instruction, and recommending personnel actions as needed. Knowledge of and ability to operate GPS equipment, level, and total station, and standard office equipment such as calculator, digital camera, computer, printer, plotter, copier, and design software. Ability to effectively communicate with coworkers, other county and municipal jurisdictions, related state and federal agencies, engineering contractors, utilities and the public, including being sensitive to professional ethics, gender, cultural diversities and disabilities. Ability to plan and lay out assigned work projects, work on several tasks at the same time, and complete assignments effectively amidst frequent distractions and interruptions. Ability to understand and follow instructions, and appropriately respond to constructive criticism. Ability to provide public access to or maintain confidentiality of department information/records according to state requirements. Ability to comply with all employer/department personnel policies and work rules, including, but not limited to, attendance, safety, drug-free workplace and personal conduct. Ability to work alone and with others in a team environment with minimum supervision, and maintain appropriate, respectful interrelationships with coworkers. Ability to regularly travel out of town for seminars and/or training, sometimes overnight. Must possess a valid Indiana state driver’s license and demonstrated safe driving record.

Please submit resumes to:
Attention: Sheena Randall
33 North 9th Street, Suite L22
Noblesville, IN 46060
**TRAINING**  
I am interested in learning more about:  
(check all that apply)  
- MUTCD  
- Concrete  
- Asphalt  
- Bridge Inspection  
- Snow Removal  
- Roadside Vegetation

**TECHNICAL MANUALS**  
I would like to see the technical manuals on the following topics:  
(check all that apply)  
- Low-Cost Safety Improvements  
- Maintenance Techniques  
- Sign Maintenance  
- Sample Ordinances  
- Right-of-Way Issues in Indiana  
- Drainage Issues

Name:  
Agency:  
Title:  
Additional Comments:  

INDIANA LTAP  
Vision Technology 1  
1435 Win Hentschel Blvd., Suite B100  
West Lafayette, IN  47906-4150