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### Iowa Local Technical Assistance Program

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IOWA STATE UNIVERSITY  
Institute for Transportation

## Veneziano assumes safety circuit rider position

David Veneziano was appointed on May 11, 2015, to the position of safety circuit rider of the Iowa LTAP, which was previously held by Tom McDonald.

In this position, Veneziano will develop, lead, and instruct transportation-related training and workshop events as well as conduct outreach for city, county, and other agencies throughout the state. By assisting in research activities pertaining to safety and local roads, he will further develop training materials for the LTAP program.

### Background

Veneziano has a Bachelor of Science (B.S.) degree in management. His Master of Science (M.S.) degree in transportation planning and doctorate (Ph.D.) in civil engineering were both earned at Iowa State University.

Veneziano says that he identifies as a safety expert “more so than anything else.”

“My primary interest over the years has been in safety. I have always been interested in identifying new approaches and evaluating how their application affects safety on our roads.”

In 2011, he led the development of the *Cost Effective Local Road Safety Planning and*

*Implementation* manual for the American Traffic Safety Services Association. He led a brief workshop presentation that discussed local road safety plans and the use of crash data, low cost solutions that could be applied in spot locations to address identified safety issues, and funding sources to assist in paying for those treatments. Going step-by-step, covering the manuals' contents and how it could be applied at the local (county) level, he identified problems, selected solutions, and, if needed, explained how to fund the improvement.

Then, for the Intelligent Transportation Society of Alaska, he led a webinar workshop on rural speed warning systems. His goal here was to develop what they called “warrants” to guide the decision-making process on where these signs might be best used, what conditions/problems it could help address, and what sort of specifications an agency should be considering when purchasing that equipment.

“There is a lot of information out there on their application, evaluations of their effectiveness and so forth, but that information is spread out and can be difficult in some cases to track down and make sense of,” says Veneziano.

*Veneziano continued on page 7*



David Veneziano, Iowa LTAP safety circuit rider

## Acronyms and Abbreviations in *Technology News*

AASHTO	American Association of State Highway and Transportation Officials
APWA	American Public Works Association
FHWA	Federal Highway Administration
IHRB	Iowa Highway Research Board
InTrans	Institute for Transportation (at ISU)
Iowa DOT	Iowa Department of Transportation
ISU	Iowa State University
LTAP	Local Technical Assistance Program
MUTCD	Manual on Uniform Traffic Control Devices
NACE	National Association of County Engineers
TRB	Transportation Research Board



U.S. Department of Transportation  
Federal Highway Administration



Iowa Department  
of Transportation

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LTAP is a national program of the FHWA. Iowa LTAP, which produces *Technology News*, is financed by the FHWA and the Iowa DOT and administered by the Institute for Transportation at Iowa State University:

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## From the director: LTAP staff

Just a short note this quarter. The big news this quarter is that, since May, Iowa LTAP is now back to being fully staffed.

This hiring process started approximately 18 to 24 months ago when two longtime employees of Iowa LTAP retired or passed away. Within the next six to eight months another staff member shifted positions and another retired. We did have something of a succession plan in place, but I don't believe a complete replacement of staff within a year or two was contemplated. Setting that aside, I wanted to thank everyone for their patience. And I'll ask for it again as everyone here goes through their "training" periods. Iowa LTAP is, however, fully open for business. As I've been telling many people, we are going to keep doing "good" and add some more "good" when it comes to Iowa LTAP activities.

Having gone through this process, I did discover that there are many LTAPs and, for that matter, many other agencies that are in similar positions. Population demographics have resulted in a large workforce turnover and produced a situation where several generations are working together in teams for the first time in history. Demographics and how it effects the workplace is certainly an interesting area.

Our Safety Circuit Rider, David Veneziano, started in May. A short summary of his background is in this newsletter. In addition, a new resource/program contact list is provided. This resource/program contact list was developed to assist you in contacting us as your local agency resource. The list may change and adjust as we move forward, but I hope it is of value.

We also have several efforts moving forward. The Motor Grader Operator (MoGo) training is wrapping up for the year. In addition, we are offering two pilot MUTCD Signing Review trainings. We will do these two dates, improve the approach (remove/add subjects perhaps), and then offer additional dates throughout the year and around the state. For good or bad, MUTCD review training contains a lot of "language." Anyone that has read the document will understand what I mean by that.

I've now been at Iowa LTAP for five years. The time has passed quickly, but it has been exciting. Let's see what the next five years brings. ■

Keith



# Iowa LTAP Resource List (May 2015)



David Veneziano, Tom Stoner, Devin Happe, Paul Albritton, Keith Knapp

## Iowa LTAP Resource

LTAP Director: Keith Knapp  
 Technical Training Coordinator: Paul Albritton  
 Safety Circuit Rider: David Veneziano  
 Local Roads Safety Liaison: Tom Stoner  
 Administrative Event Coordinator: Devin Happe  
 Newsletter Editor: Brandy Abraham

## Service or Program

Crash Data Analysis and Safety Visits  
 Flagger and/or Work Zone Training  
 Individual Trainings/Workshops  
 Leadership Institute  
 Library Requests  
 Multi-Disciplinary Safety Team (MDST) Assistance  
 New Ideas for Training/Workshop/Events  
 Newsletter Ideas  
 Operator/Equipment Training Ideas  
 Questions/Technical Assistance  
 Road Safety Audits/Assessments  
 Roads Scholar Program  
 Signing and Marking Training  
 Workshop Administration/Financials/Venues  
 Work Zone Training

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## Primary/Secondary LTAP Resources

Tom Stoner/David Veneziano  
 Paul Albritton/David Veneziano  
 See Workshop Website  
 Keith Knapp  
 Paul Albritton/Devin Happe  
 Tom Stoner/David Veneziano  
 Keith Knapp  
 Brandy Abraham/Paul Albritton  
 Paul Albritton/Keith Knapp  
 Tom Stoner/Keith Knapp  
 David Veneziano/Tom Stoner  
 Paul Albritton/Keith Knapp  
 David Veneziano/Keith Knapp  
 Devin Happe  
 David Veneziano/Paul Albritton ■

## Iowa LTAP Mission

To foster a safe, efficient, and environmentally sound transportation system by improving skills and knowledge of local transportation providers through training, technical assistance, and technology transfer, thus improving the quality of life for Iowans.

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# Understanding the Road Use Tax Fund

By Nicole Fox, Secondary Roads Engineer, Office of Local Systems, Iowa Department of Transportation

On February 25, 2015, Iowa Governor Terry E. Branstad signed into law a 10 cent fuel tax increase. Some prefer to call it a “user fee,” which it truly is. If you use the roads, you need to buy gas for your car to get around, and the increased fees will help improve the roads you use. If you don’t use the roads, you still benefit from the goods and services that are delivered to you over Iowa’s roadways. Since transportation costs are often a large part of what you pay for goods and services, the road improvements funded by these increased fees will help keep these costs down.

The 10 cent fuel tax increase will be deposited into the Road Use Tax Fund (RUTF), which is constitutionally protected to be spent only for purposes “relating to the construction, maintenance and supervision of public streets” (Iowa Code Section 312.6). Of the funding deposited into the RUTF, 47.5 percent goes to the Primary Road Fund for the Iowa Department of Transportation (Iowa DOT) to use, 24.5 percent to the Secondary Road Fund, which gets split between all 99 counties in the state, and 8 percent to the Farm-to-Market Fund, for the counties use on roads designated as Farm-to-Market roadways. The remaining 20 percent gets deposited into the Street Construction Fund, for the cities in Iowa.

So what does this mean for local public agencies (cities and counties) across Iowa? It means an increase in RUTF for each county, ranging between \$400,000 and \$1,300,000. The distribution of these funds amongst the counties depends on various factors, including area of the county, linear foot of bridge deck, rural population, vehicle miles traveled, and number of miles of earth, granular, and paved roads.

For the cities, it means a forecast increase from \$103.00 to \$120.50 per person in fiscal year 2016, an increase of \$17.50 per person. The population of each city is based on the 2010 census, including updates resulting from annexations and special census counts as approved by the Secretary of State. So, for a city with a population of 1,000, that city will get approximately \$17,500 additional RUTF revenues each year.



Iowa resident fueling car at local station

The legislative intent is for the additional RUTF revenue to be spent on “critical road and bridge construction projects.” The Iowa DOT will identify these state highway projects in the Five-Year Transportation Improvement Program adopted by the Iowa Transportation Commission every June. Local public agencies are strongly encouraged to identify what projects are being funded with the additional revenue. Prior to the next legislative session, the Iowa DOT will ask, but not require, each local public agency to submit their list of projects funded with the additional revenue so that a statewide report can be prepared for the public and legislature.

The additional revenue will be great for Iowa’s roadways, as well as the road users, but you may be wondering how this will affect your personal finances. If your vehicle has a 15 gallon fuel tank, every time you fill up that vehicle, it costs \$1.50 extra for the 10 cents per gallon fuel tax increase. If you fill up once per week, 52 weeks each year, then it costs you an extra \$78 per year, or \$6.50 per month.

Overall, this additional revenue will provide some much needed help in improving the condition of roads and bridges in Iowa. While it isn’t going to improve all roads overnight, it will help to begin making progress toward a better transportation system. ■

# Road Diets—less is more

By Rebecca Crowe, FHWA Office of Safety

We live in a world that requires more. More highway lanes to move traffic. More bandwidth to run our computer applications. More energy to power our screens. We also live in a world where more is harmful: more people are killed in roadway crashes in the United States than most anything else, ranking in the top 15 causes of death for the past 30 years (National Highway Traffic Safety Administration (NHTSA), “Traffic Safety Facts Research Note: Motor Vehicle Traffic Crashes as a Leading Cause of Death in the United States, 2008 and 2009,” DOT-HS-811-620 (Washington, DC: 2012).

Of the multiple safety treatments from which an agency can choose to address this problem, what if one of them involved not increasing but rather reducing the number of travel lanes? That solution exists, and it is called a “Road Diet.”

Four-lane undivided highways have a history of relatively high crash rates as traffic volumes increase and as the inside lane is shared by higher-speed through traffic and left-turning vehicles. A classic Road Diet converts an existing four-lane undivided roadway segment to a three-lane segment consisting of two through lanes and a center two-way left turn lane (TWLTL). The configuration also provides an opportunity to allocate excess roadway width to other purposes, including bicycle lanes, on-street parking, or transit stops.

## Improvements to safety

A Road Diet can improve safety and provide important benefits including the following:

- Reduced overall crashes (typically 19 to 47 percent)
- Reduced rear-end and left-turn crashes though the use of a dedicated left-turn lane
- Reduced number of lanes for pedestrians to cross
- Reduced right-angle crashes as side street motorists must cross only three lanes of traffic instead of four

- Improved traffic calming and reduced speed differential, which can decrease the potential for crashes and reduce the severity of crashes if they occur
- Simplified road scanning and gap selection for motorists (especially older and younger drivers) making left turns from or onto the mainline

## Improvements to quality of life

The Road Diet configuration also offers a number of quality-of-life improvements, offering transportation planners the following opportunities:

- Install pedestrian refuge islands
- Install bicycle lanes when the cross-section width is reallocated
- Allocate the “leftover” roadway width for other purposes, such as on-street parking or transit stops
- Support a more community-focused “Complete Streets” environment

## Other considerations

A Road Diet can be a low-cost safety solution, particularly in cases where only pavement marking modifications are required to make the traffic control change. In other cases, the Road Diet may be planned in conjunction with reconstruction or simple overlay projects, and

the change in cross-section allocation can be incorporated at no additional cost.

Geometric and operational design features should be considered during the design of a Road Diet. Intersection turn lanes, traffic volume, signing, pavement markings, driveway density, transit routes and stops, and pedestrian and bicyclist facilities should be carefully considered and appropriately applied during the reconfiguration for appropriate Road Diet implementation.

As with any roadway treatment, data analysis and engineering judgement are required to determine whether a Road Diet is the most appropriate alternative in a given situation.

A new publication includes safety, operational, and quality of life considerations from research and practice, and it will guide readers through the decision-making process to determine if Road Diets are a good fit for a certain corridor. It also provides design guidance and encourages post-implementation evaluation. The guide is available at [http://safety.fhwa.dot.gov/road\\_diets/info\\_guide/](http://safety.fhwa.dot.gov/road_diets/info_guide/).

## For more information

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Adapted from *LTAP Matters*, Winter 2015, Montana LTAP ■

### Editor's note:

There are a number of Road Diet case studies throughout Iowa. In addition, several research projects and analyses have been completed by investigators in the state. Guidelines were developed in Iowa for these four-lane to three-lane conversions about 15 years ago. Several references can be found at <http://www.ctre.iastate.edu/research/4laneto3lane.htm>. Keith Knapp, Iowa LTAP director, was a co-author of the guidelines noted in the article above. He can be contacted at 515-294-8817 or [kknapp@iastate.edu](mailto:kknapp@iastate.edu). ■

# 12 tips for maintaining unpaved roads

Like fingerprints, each unpaved road is unique. The wear surface may be gravel, crushed rock, or sand, but all have one thing in common: Maintenance is required to keep the roadway in good driving condition.

Traffic displaces road surface material onto shoulders and into ditches, forming ruts in the roadway. Washboarding forms at stop signs, hills, and turns and in areas of acceleration or braking. Storms, runoff, and snowplowing also take their toll on unpaved roadways.

Following are 12 tips that can help you lengthen road maintenance intervals and avoid rework:

**1** To remove washboarding, cut the corrugations to their full depth, then regrade the area with moist material that will compact. (Corrugations filled with loose, dry materials will reform quickly in areas of high vehicle traffic.) Corrugations are best removed by using a scarifier or a serrated cutting edge.

**2** Articulating the rear frame toward the toe of the moldboard by 2 to 5 degrees helps reduce motor graders' tendency to bounce and is extremely effective when cutting out washboards. This places one front tire slightly ahead of the other, allowing one tire to be on top of a corrugation while the other is in the bottom. As the tires roll up and down through the washboard, the front axle will pivot up and down, keeping the front mainframe stable. Don't use the crab mode when scarifying washboarded areas. This can bend the scarifier shanks and/or linkage.

**3** Cut to the depth of major potholes to eliminate them. (Again, filling holes with loose, dry material is ineffective, as traffic quickly displaces the loose material and the holes reform.)

**4** Typically, begin road maintenance with the moldboard top approximately 2 inches ahead of the cutting edge, and then adjust to the material and conditions. Tip the moldboard forward or back to obtain and maintain the desired cutting-rolling action. Tipping the moldboard forward will increase moldboard throat clearance. Generally, a wider throat opening allows better material flow along the moldboard in a wide variety of soil types. Maintaining a rolling action on the material while working reduces the horsepower required and provides maximum productivity.

**5** Material buildup in the circle area may increase circle wear. It can also stop material rolling action and cause it to be bulldozed. Bulldozing material requires more horsepower and more traction and reduces motor grader productivity.

**6** Apply only enough downward pressure to accomplish the task. Excessive downward pressure on a hard, dry surface causes rapid cutting edge wear, requires more horsepower and fuel, and reduces productivity.

**7** The blade's tip angle should be positioned with the cutting edge at 90 degrees to the road surface. In this position, downward pressure on the moldboard places less stress on the cutting edge and retaining bolts. The edges also tend to ride over objects, which helps prevent machine damage.

**8** For maximum machine stability when maintaining roadways, the motor grader's main frame should be straight with the drawbar and circle-centered under the frame.

**9** For the widest possible pass on the travel surface, keep the moldboard angle as square to the frame as possible. If material starts to flow around the leading end of the moldboard, or the rolling action dies, increase the blade angle.

**10** Keep machine travel speed as high as possible for maximum productivity but low enough to prevent machine bounce (generally, 4 to 7 mph).

**11** Moldboard angles of 10 to 30 degrees are normally used in light, free-flowing material. Higher moldboard angles of 30 to 50 degrees are required when processing wet-sticky material, mixing large windrows, and ditching.

**12** To cut hard material or for finishing work, tip the moldboard further forward than the start position. When finishing, tip the moldboard top 4 to 5 inches ahead of the cutting edge so the cutting edge is approximately 90 degrees to the cut surface. This moldboard tip position will generally position the drawbar parallel to the finished grade.

As always, road conditions and your fleet are factors in your agency's road maintenance practices.

— Article adapted from the original in Caterpillar's *Governmental Solutions*, Spring 2012 ■

# Conference calendar

Date	Event Name	Location	Contact
<b>July 2015</b>			
9	Annual ICEA Mid-Year Conference	Ames	Keith Knapp
<b>September 2015</b>			
22-24	Iowa Streets and Roads Workshop and Conference	Ames	Beth Richards
<b>October 2015</b>			
8	Fall Safety Series	Cherokee	David Veneziano
9	Fall Safety Series	Red Oak	David Veneziano
14	Fall Safety Series	Ottumwa	David Veneziano
15	Fall Safety Series	Cedar Rapids	David Veneziano
16	Fall Safety Series	Waverly	David Veneziano
20-22	NHI–Bridge Inspection Refresher Training	Ames	Devin Happe
22	Fall Safety Series	Ames	David Veneziano
<b>August 2015</b>			
19-21	Iowa Chapter APWA Fall Conference	Marion	Dan Whitlow
30-2	APWA International Public Works Congress & Exposition	Phoenix, AZ	Dan Whitlow
<b>December 2015</b>			
8-10	ICEA Annual Conference	Ames	Keith Knapp

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## Event details and online registration

Watch for details and online registration information, by specific dates and events, on the online calendar, [www.intrans.iastate.edu/mors/calendar/](http://www.intrans.iastate.edu/mors/calendar/). ■

*Veneziano continued from page 1*

So, the webinar covered the potential uses of these signs, how to use the warrants that had been developed in making that decision, and what considerations to include when seeking to make a purchase.

“Collectively, my previous experience will be useful to draw upon not only in the safety aspects of my position here but as other opportunities and needs arise with the LTAP group,” says Veneziano.

## A look into the future

Before coming to the Iowa LTAP, Veneziano developed his background and knowledgebase. Now, as the safety circuit rider, he wants to further apply what he has learned and provide outreach to others.

“I think the biggest thing I bring to county and local engineers is a desire to help in any way I can,” says Veneziano.

As their go-to safety and training resource, he encourages them to reach out to him with questions and requests.

“Whether it is looking into a question someone might have and getting them the information they need or providing training to help them or their staff, my goal is to serve our clients.”

## Contact

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