

BALTIMORE ■ BOISE ■ FORT LAUDERDALE ■ ORLANDO ■ PORTLAND

Research: Driving the Transportation Field

Whether it's motorists frustrated by congestion or bicyclists and pedestrians seeking additional multi-modal options, many people want more effective transportation solutions. Community groups seek to improve safety by slowing speeding vehicles in their neighborhoods, urban residents desire better mass transit options and developers want a realistic idea of the impacts their projects will have on surrounding roads.

Many federal, state and local organizations use applied research to address these and other challenges.

At the national level, the National Cooperative Highway Research Program conducts research and implements measures ranging from modern roundabouts to an application guide to accompany the *Highway Capacity Manual*. The Transit Cooperative Research Program is developing a *Transit Capacity and Quality of Service Manual* that measures transit availability and emphasizes service quality. These programs, part of the National Academies of Science and Engineering's Transportation Research Board, coordinate and share funding and information.

Research at the state level often supplements national findings. For example, New York, Kansas and Arizona's transportation departments have funded supplements to *Roundabouts: An Informa-*



Many federal, state, and local organizations use applied research to improve multi-modal options for motorists, bicyclists, and pedestrians.

tional Guide, produced in 2000.

This research helps states incorporate specific policy and design elements while considering national guidelines. Florida's transportation department funded research that found more people use transit when it is accessible and convenient, justifying the public's investment in transit systems.

"Florida's efforts have helped metropolitan planning organizations in Tallahassee

and other cities improve transit performance and availability and increase ridership," said Paul Ryus, KAI's project manager for the Transit Level-of-Service projects. Florida's transportation department is sharing its knowledge with local jurisdictions, presenting workshops about how to improve street connectivity and preserve state highway resources.

Jurisdictions across the country have partnered with private organizations to solve problems and improve services. Several businesses have included trip-generation research when planning new developments to assess the impacts of growth on nearby roads, and the city of Portland,

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This edition of StreetWise focuses on the important topic of applied research, which federal, state, and local organizations use to address issues such as congested intersections and highways, multi-modal transportation options, traffic calming and transit use.

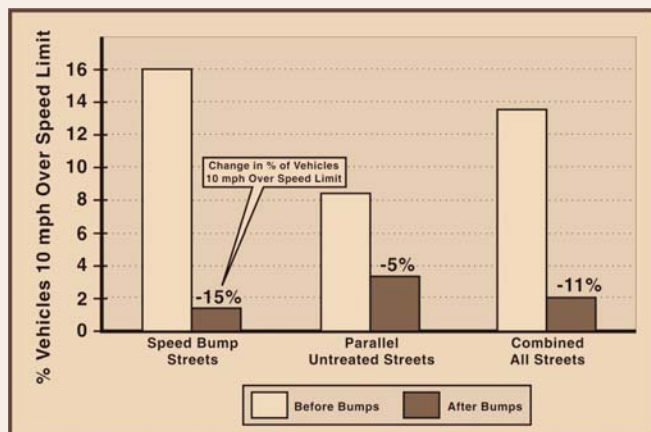
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Research: A Focus on Safety

Although the average person might not think about safety as they stroll through a crosswalk or zip down a freeway, the subject is a primary focus for transportation researchers seeking ways to help Americans travel more safely and efficiently.

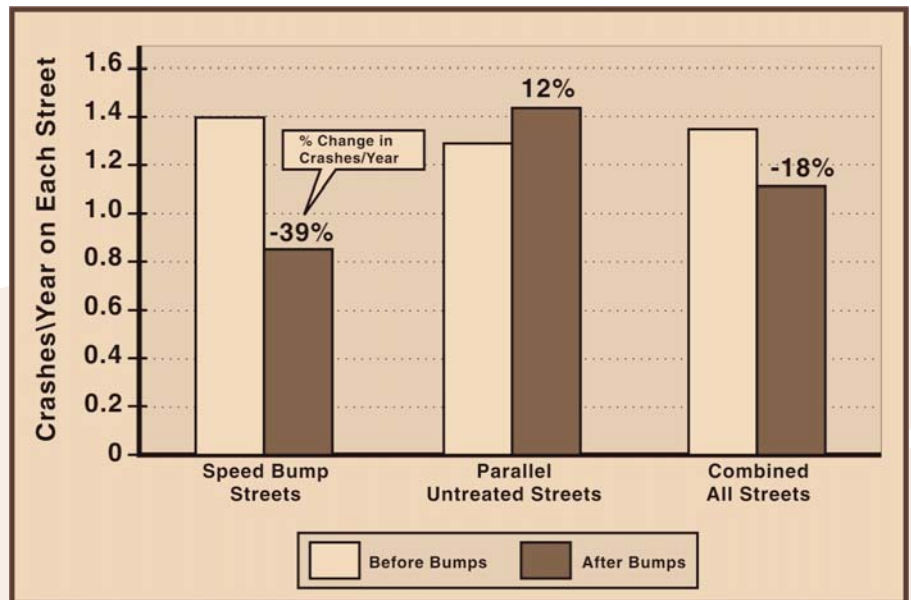
High numbers of vehicle accidents motivate transportation organizations, the U.S. government and the general public to seek safer options as transportation systems become more advanced and support more users. Nearly 43,000 people are killed and 3.25 million injured on America's highways each year, according to the American Association of State Highway & Transportation Officials.



Portland found that speed bumps were effective in slowing traffic on treated streets.

The rate of fatalities and injuries has prompted the federal government to identify safety as the focus of the next major transportation legislation. The Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFETEA), TEA-21's proposed successor, will emphasize transportation safety while building on the progress previous bills made in multi-modalism and freight mobility.

National transportation policy funds a host of current safety initiatives, including the development of safety-conscious planning and design. Rather than reacting to safety problems that already



The City of Portland conducted research to evaluate the effectiveness of speed bumps.

exist, this proactive approach seeks to prevent accidents and dangerous travel conditions by incorporating safety requirements in all levels of transportation planning, including 20-year development strategies crafted by state transportation departments and metropolitan planning organizations.

Another initiative is the Transportation Research Board's new *Highway Safety Manual*,

designed to provide tools and information on how highways can be designed to improve safety and reduce deaths and injuries. A number of research projects will contribute to this effort, including *Developing methods to estimate the safety and operational impacts of roundabouts in the U.S.*, a long-awaited study from the National Cooperative Highway Research Program (NCHRP).

Such research has resulted in many safety improvements at the local level. Concerned residents in Portland, Oregon, for example, inspired city officials to implement a traffic-calming program, including the construction of speed bumps and traffic circles, to slow vehicle

speeds and reduce accidents in neighborhoods. The program, implemented in 1994, was deemed extremely effective.

"As engineers and planners in the transportation field we solve problems and the process of solving problems has to have a feedback loop. Research really is that feedback loop," said Robert Bertini, assistant professor of civil and environmental engineering and urban studies and planning at Portland State University, and director of PSU's Center for Transportation Studies.

Mike Coleman, a senior traffic engineer for the city of Portland, agreed, noting applied research such as the data that led to Portland's traffic-calming program is essential to incorporating safety strategies that truly make a difference.

"The value of good research is that when we have research we can rely on, we can make changes with confidence," Coleman said.

Driving the Field

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Oregon, used research to confirm the effectiveness of its traffic-calming program.

"We found that the speed bumps, traffic circles and other traffic-calming devices slowed traffic, reduced accidents and reduced the severity of accidents that did happen," said Beth Wemple, a project manager who led KAP's efforts for the city.

Application Makes Research Matter

Transportation studies have produced a range of practical tools, including the Interactive Highway Safety Design Model (IHS-DM), which evaluates existing and proposed highway designs providing quantitative information on their expected safety and operational performance. Another application is Transit Level-of-Service (TLOS), which demonstrates that transit availability affects how much people use it.

“The TLOS software helps provide a detailed assessment of the amount of transit service provided, for areas ranging in size from an individual transit stop to an entire transit system and for time periods ranging from fifteen minutes to one week,” said Paul Ryus, associate engineer in KAI’s Portland office.

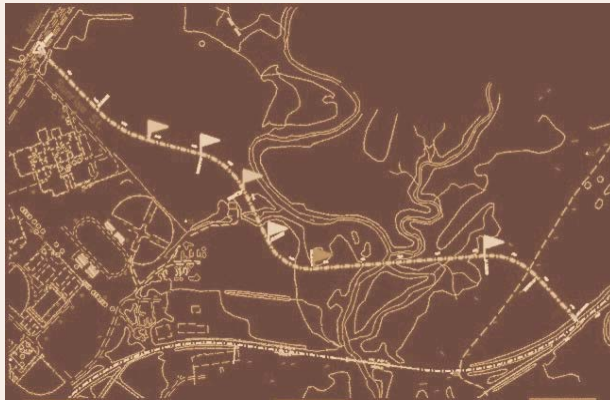
“The guidebook is expected to be an important reference document for all transportation professionals because the *Highway Capacity Manual* is the most widely used resource for traffic analysis,” said Wayne Kittelson, KAI principal who is leading the study.

The Federal Highway Administration’s *Roundabouts: An Informational Guide* was a breakthrough for transportation professionals in understanding modern roundabouts.

“Before the guide, there was no U.S.-based design tool and professionals relied on foreign roundabout design guides, roundabout proponents, or, in some states, statewide roundabout design

guides,” said KAI’s Lee Rodergerdts, principal investigator in a national roundabouts study.

Such research is more easily accessible today than ever before. Even so, it must provide practical solutions in order to be successful.



IHDM helps designers identify critical areas in their designs.

“There’s a wealth of information and synthesizing it in a way that designers and others can use is essential,” said Chris Monsere, highway safety engineer for the Oregon Department of Trans-

portation and a member of the Highway Safety Manual committee. “Really good research is beyond the scope of any state, so we try to support federal research that helps us determine how

we can improve systems at the state level.”

Ray Krammes, highway research engineer for the Federal Highway Administration, said developing research that is both accessible and applicable is a top priority for his agency.

“The key to successful research is somebody using its results and making presumably better decisions,” Krammes said. “We need to ask, ‘How do we take our results and put them into a form that can be best used by states and their consulting agencies?’”

“The key to successful research is somebody using its results and making presumably better decisions.”

additional information

To find out more regarding the topics discussed in this newsletter, visit these Web sites:

The National Academies of Science and Engineering’s Transportation Research Board
<http://gulliver.trb.org/>

Federal Highway Administration <http://www.fhwa.dot.gov>

American Association of State Highway and Transportation Officials
<http://transportation1.org/aashtonew>

KAI Profile

The people and innovative ideas driving KAI



Who: Karl Passetti
Title: Senior Engineer
Office: Fort Lauderdale

Q: What projects are you involved with currently?

A: We’re working with the city of Coral Springs, Florida, to help implement their traffic-calming program, assist with development reviews and provide guidance on transportation issues. It results in short-term tasks that get implemented, and that is really satisfying. It’s also an opportunity to learn what it’s like to work in the public sector. It gives you a much greater understanding of what jurisdictions are looking for from consultants, and a greater understanding of schedules and processes.

Q: Talk about your experience working with the Australian firm Eppell Olsen & Partners for 12 weeks as part of KAI’s exchange program.

A: It gave me the opportunity to compare companies, their management structures and the day-to-day working environments. The wider range of experience and knowledge gained through the exchange can be applied to help clients and KAI.

Q: Where were you educated?

A: I received my undergraduate degree from Pennsylvania State University and my master’s degree from Texas A&M University.

Q: What prompted you to pursue a career in the transportation engineering field?

A: It offered an attractive blend of technical challenges and social interaction. To me, that is a great part of being a consulting engineer. As an engineer, you solve problems. As a consultant, you communicate your solutions. Putting those together is what I was always aiming for.

Q: How do you spend your free time?

A: I get together with friends to play beach volleyball and floor hockey. And I enjoy reading. Right now I’m reading *When Pride Mattered*, the biography of Vince Lombardi.

Q: What’s coming up for you personally?

A: I’m engaged to be married to Melissa Benjamin in November.



Traffic Signal Displays for Protected/Permissive Left-Turn Control

Protected/Permissive Left-Turn control (PPLT) has been in use in the United States for several decades. Because a uniform PPLT traffic signal display was never accepted at the national level, engineers across the United States, and around the world, have developed different PPLT displays that each have unique characteristics. **Kittelson & Associates, Inc.** played the leading role in organizing a team of transportation engineers, including researchers from the **Texas Transportation Institute** and the **University of Massachusetts Amherst**. The process involved a computer-based photographic driver survey administered in eight states to over 2,000 drivers. A full-scale driver simulation was also developed to test the effectiveness of alternative displays. The final "Flashing Yellow Arrow" design provides a simple and consistent left-turn signal display. The display is currently being adopted and will be encoded in the *Manual on Uniform Traffic Control Devices*.

The PPLT project was chosen to be the KAI submission to the **ACEC Engineering Excellence Awards** for 2004.

KAI news

New Faces & Places

The Baltimore office welcomes the addition of Associate Planner **Yolanda Takesian**; Graphic Designer **Caroline Swartz**; Transportation Analyst **Casey Bergh**; and Engineering Associate **Eric Waltman**, who transferred from Portland.

Portland welcomes several new staff this year: Transportation Analysts **Chris Tiesler**, **Kevin Lee**, **Jessica Josselyn**, **Adrian Witte**, and **Selman Altun**. Associate Planner **Del Huntington** recently arrived from ODOT. Accountant **Conley Bergh** and Engineering Associate **Susan Wright**, who relocated from Fort Lauderdale, joined the Portland office.

Honors & Awards

Miranda Blogg was elected Secretary of the ITE Florida Chapter.

The *Daily Journal of Commerce* honored KAI at the "Profiles of Excellence: Searching for the Region's Best Employers" awards breakfast.

Family Matters

KAI Weddings

Brandon Nevers & Eliza Straten

Caroline McCabe & Christopher Swartz

KAI Babies

Abigail Sheila Marilyn born to **Peter & Susan Koonce**

Claire Sofia born to **Julia & Marc Butorac**

Samuel Braden born to **Wade & Jill Scarbrough**

KAI bids a fond farewell

Emma Donnelly & Mark O'Brien finished their work exchange in Portland and returned to Australia.

Patti Thomas returned to private practice after serving as KAI's "temporary" CFO for four years!

KAI Events

KAI Boise Open House
Thursday March 25, 2004
101 South Capitol Blvd., Suite 301
(208)338-2683

Streetwise, the official newsletter of **Kittelson & Associates, Inc.**, is designed to keep readers informed about current issues and recent developments in transportation. For additional copies, email streetwise@kittelson.com.

Please visit us on the Web at www.kittelson.com.