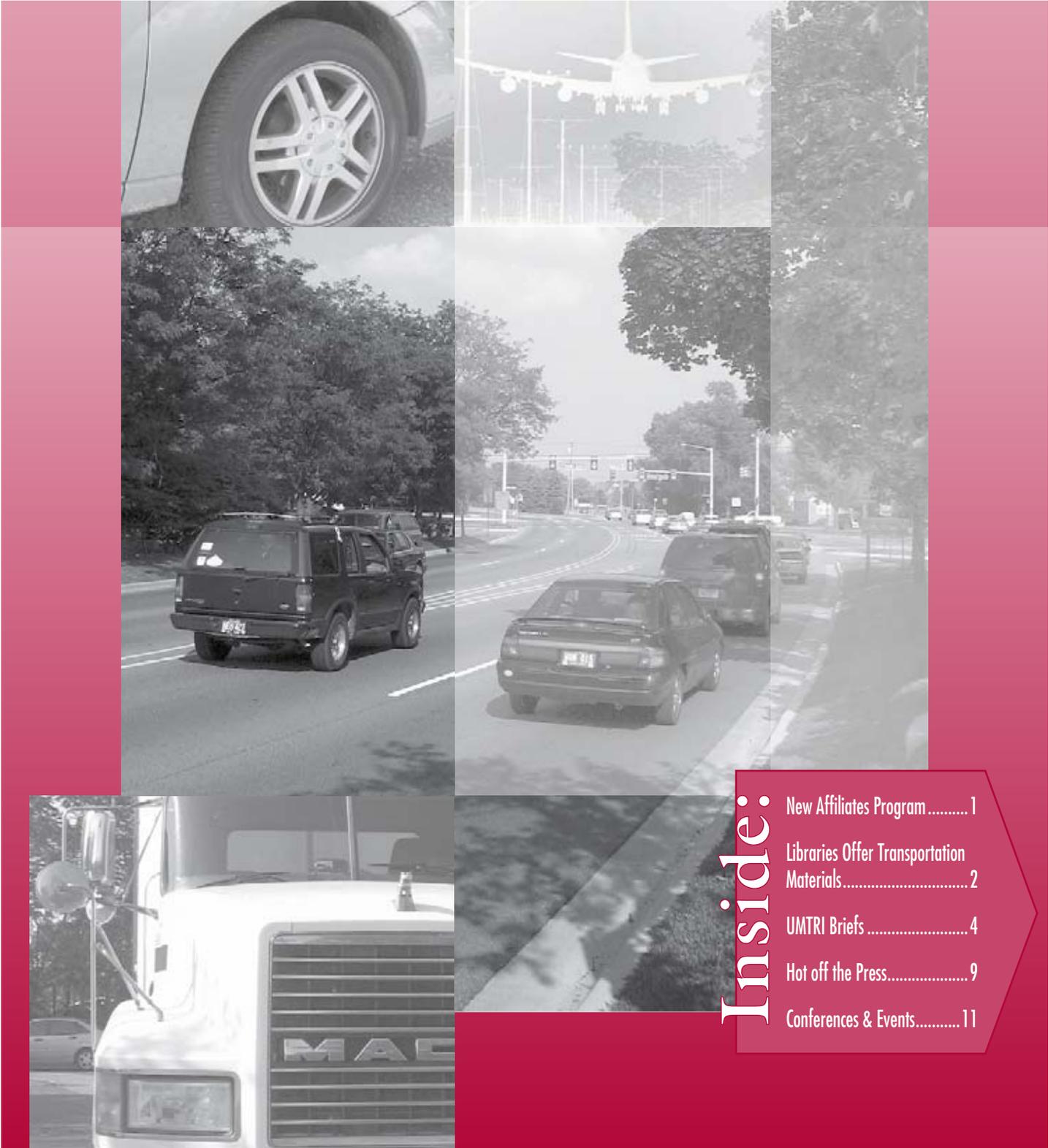


UMTRI

RESEARCH REVIEW

• UNIVERSITY OF MICHIGAN TRANSPORTATION RESEARCH INSTITUTE • OCTOBER–DECEMBER 2004 • VOLUME 35, NUMBER 4 •



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TSA Introduces Affiliates Program



UMTRI/DELL LUCHIANO

UMTRI's Transportation Safety Analysis (TSA) Division has recently launched a new Affiliates Program to build relationships with manufacturers, suppliers, and other organizations to provide truck and bus safety research in areas of mutual interest. Research focuses on factors that promote crash avoidance such as vehicle design, technology devices, forward and lateral warning systems, driver workload reduction (such as internal environments and vision), social factors (such as aging drivers or shortages of drivers), data analysis and risk modeling, and progressive regulatory instruments (such as risk-based operational protocols). John Woodrooffe, head of the TSA Division, says that such measures can potentially reduce the occurrence of crashes as much as five fold.

The Affiliates Program provides members with access to the most comprehensive database of accident data, a forum for discussing current safety issues, and an opportunity to help identify future research directions. Woodrooffe says, "UMTRI offers a comprehensive, multidisciplinary research capability for heavy trucks.

We can act as an R&D department for the industry. They can tap our knowledge base and use our highly specialized research staff without having to invest in their own core personnel."

The TSA Division addresses the driver, vehicle, and roadway dimensions of the transportation system. The foundation of the division's approach is a commitment to data quality developed from experience with field data collection, survey methods, and state and federal data files. It couples the data analysis with engineering and specialized research to produce highly focused solutions to very complex questions.

Since its inception, the Transportation Safety Analysis Division has been jointly supported by industry, government and private sponsors. Among these organizations are the Motor Truck Division of the former Motor Vehicle Manufacturers Association and the American Trucking Associates, Inc. Since 1990 the center has also received support from the Federal Highway Administration, the National Highway Traffic Administration, the Bureau of Transportation Statistics, and Sandia National Laboratories.

For more information about this program please call UMTRI's Transportation Safety Analysis Division at (734) 764-0248 or visit www.umtri.umich.edu/umtri/divisions/tsa.html. **RR**

Members of the Affiliates Program receive the following benefits:

- **Acknowledgement in research publications**
- **Participation in our Annual Affiliates Forum**
- **Special reports on topics of interest**
- **Access to all published reports and data**
- **The opportunity to participate in cooperative research projects**

Libraries Partner to Offer Expanded Access

In October, 2004, UMTRI hosted the fourth annual meeting of the Midwest Transportation Knowledge Network (MTKN). The MTKN is a consortium of transportation libraries that was initiated in 2001 by the National Transportation Library (NTL).

MTKN comprises thirteen libraries in region 3 of the American Association of State Highway and Transportation Officials: the Department of Transportation libraries of Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, South Dakota, and Wisconsin; Northwestern University's Transportation Library, UMTRI's library and the library of Hanson Professional Services in Springfield, Illinois.

The impetus for the NTL to form MTKN came from a growing awareness of the unprecedented need to improve access to transportation information and a recognition that a disparity of information resources exists among transportation libraries. MTKN seeks to level the playing field for its member libraries. Constituents are served by the following benefits:

- **Multiplication of Cost Savings**

MTKN member libraries are linked to vital transportation resources more quickly, thoroughly, efficiently, and cost-effectively. One state DOT Library estimates that its services contribute \$8.3 million annually to the department in reduced costs and added value.

- **Pooling of Indexed Materials**

A major MTKN initiative has been to create an online "union catalog" of national and regional transportation materials in cooperation with the Online Computer Library Center (OCLC). This resource helps transportation professionals access transportation research more quickly and efficiently. It was made possible by the coordinated efforts of MTKN and the National Transportation Library (NTL), with initial funding from NTL.

- **Customer Training**

MTKN also partnered with the National Highway Institute (NHI) and the National Transportation Library to educate customers through Internet training on accessing transportation information and using transportation databases. The two-hour Web-based course, "Working Smarter," was offered to transportation professionals several times in 2004. See NHI's Web site (www.nhi.fhwa.dot.gov/calender/eventreg.asp) for other online learning courses.

- **Improved Access to New Technology**

Federal and state agencies invest hundreds of millions of dollars annually in research to fuel innovation. Helping practitioners access these new technologies more effectively will speed implementation, avoid lost opportunities and reduce duplication of existing approaches.



The fourth annual meeting of the Midwest Transportation Knowledge Network was held at UMTRI in October. Members include (left to right) Jeffy Baldwin (Minnesota DOT), Amy Brennan (UMTRI), John Cherney (Wisconsin DOT), Julia Daniel (UMTRI), Arlene Mathison (Center for Transportation Studies, University of Minnesota), Hank Zalatel (Iowa DOT), Janet Bix (Ohio DOT), Bob Sweet (UMTRI), Joyce Koeneman (National Transportation Library), and Chad Pollock (Missouri DOT).

UMTRI/SHEKHAR ERRINGTON

- **Shared Resources Bring Efficiencies**

MTKN members not only share specialized, low-cost interlibrary loan items but also their expertise on the rapidly expanding science of capturing, indexing, and disseminating print and electronic information.

- **Expert Search and Instruction**

A vast majority of Internet publications are contained within the "deep Web" a myriad of library catalogs and publisher databases that are not readily accessible. For example, 65 percent of recent reports abstracted in the Transportation Research Board's TRIS Online database are not Internet accessible. (A study that developed that estimate also demonstrated that 82 percent of those same recent reports can be made readily available to anyone through the services of MTKN libraries.) Transportation librarians expertly navigate and teach others to navigate the "deep Web" to find a rich array of resources.

to Transportation Research Materials

MTKN organizers hope that the MTKN will serve as a model for other regional transportation library networks. The executive board is reaching out to other libraries to help build a stronger national information infrastructure, which will ensure that the benefits listed above are readily available to all transportation researchers and practitioners. **RR**

Info You Can Use

Resources

National Transportation Library

Digital collection and acclaimed
"Ask A Librarian" service

http://ntl.bts.gov/digital_collection.cfm

TLCat (Transportation Libraries Catalog)

Catalog of holdings of several
transportation libraries

<http://ntl.bts.gov/link.html>

TRIS Online

Bibliographic database of transportation
literature, made available by the
Transportation Research Board

<http://trisonline.bts.gov/search.cfm>

National Highway Institute

Web conference training events

www.nhi.fhwa.dot.gov/calender/eventreg.asp

MTKN Member Libraries

Illinois DOT

(217) 782-6680

Iowa DOT

(515) 239-1200

Kansas DOT

www.ksdot.org/burmatrres/kdotlib2.asp

Minnesota DOT

www.dot.state.mn.us/library/ (website)

http://mdt.mnpals.net/F?RN=594763980&func=file&file_name=basic (catalog)

Missouri DOT

www.modot.org/services/rdt

Ohio DOT

www.dot.state.oh.us/library (website)

<http://slonet.state.oh.us> (catalog)

South Dakota DOT

(605) 773-3292

Wisconsin DOT

www.dot.wisconsin.gov/library/services
(website)

www.wiscat.net (catalog)

Northwestern University Transportation Library

www.library.northwestern.edu/transportation
(website)

<http://nucatl.library.northwestern.edu> (catalog)

UMTRI

www.umtri.umich.edu (website)

www.umtri.umich.edu/library/advanced.html
(catalog)

University of Minnesota Center for Transportation Studies

www.cts.umn.edu/libraries (website)

http://mdt.mnpals.net/F?func=file&file_name=basic&local_base=CTS_CAT_PUB
(catalog)

Hanson Professional Services, Inc.

www.hanson-inc.com (website)

<http://hip.rpls.ws/ipac20/ipac.jsp?profile=spishan#focus> (catalog)

SUV Pre-Roll Events Identified

When involved in a traffic accident, SUVs are over three times more likely to roll over than passenger cars. Researchers in UMTRI's Transportation Safety Analysis Division recently studied the pre-roll events of SUVs to better understand the vehicles' stability. The authors—Daniel Blower, John Woodrooffe, Paul E. Green, Anne Matteson, and Michael Shrank—showed that stability-control technology can significantly reduce traffic fatalities, especially in rollover crashes. In fact, of the crashes examined in the study, a vehicle stability-control device could have helped to prevent up to 48.5 percent of the SUV rollovers.

Researchers analyzed data from NHTSA's Fatality Analysis Reporting System (FARS), General Estimates System (GES), and National Automotive Sampling System (NASS) to determine factors that affect rollover. They found that in single-vehicle crashes, 29.9 percent of SUVs rolled over. Factors associated with higher rollover probability included driver age under 25, driver drinking, three or more occupants in the vehicle, traversing a curve, road speed limits greater than 50 mph, roadway grades, ice on the roadway, and (for multiple vehicle accidents) travel between midnight and 6:00 a.m.



DAIMLER CHRYSLER—MERCE



NHTSA/NATIONAL AUTOMOTIVE SAMPLING SYSTEM

The researchers also identified three major rollover event sequences: loss of control, collision with another motor vehicle, and all other roll sequences. For the latter, three precursor scenarios were defined: drift off road, evasive maneuver, and ran off road.

The report, which was cited in the Wall Street Journal article “Teenagers, SUVs Don’t Mix Well,” is available at

<http://www.umtri.umich.edu/library/pdf/2004-16.pdf>.

Highway Safety Scan Tour Gathers Recommendations

In June, 2004, a nine-member team visited transportation centers of excellence in human factors safety research in Finland, Norway, Sweden, Denmark, the Netherlands, and France. Tour members included UMTRI's Barry Kantowitz, who served as report facilitator, and personnel from the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and two universities. The goal of the tour was to learn how the visited research sites plan, develop, and conduct human factors research and put the findings into practice. For a related story, see "Quiet Pavements: Lessons Learned from Europe" in FHWA's *Focus* magazine at www.tfhr.gov/focus/spr05/04.htm.

The tour was based around the U.S. transportation community's emphasis on the need to improve highway safety. For example, AASHTO and FHWA have adopted a goal to reduce highway injuries, fatalities, and injuries by 20 percent. AASHTO's focus is on determining the most promising countermeasures that improve safety in a cost-effective manner and are acceptable to the majority of the public. FHWA is concentrating on intersection, run-off-road, and pedestrian safety.

Kantowitz says, "Human factors issues associated with roadway design and operations are critical components of these highway safety improvement areas. The tour provided methodological and technical insights into how best to incorporate human factors issues in the research, design, and operations of highways. It is vital to disseminate information on best practices in highway human factors so that U.S. drivers can benefit from successful international projects." Kantowitz reported these European best practices at the annual meeting of the Human Factors and Ergonomics Society in September, 2004.



UMTRI researcher Barry Kantowitz served as report facilitator on the Highway Safety Scan Tour.

As a result of the scan tour, the group found the following categories of implementable practices that could be transferable to U.S. roadway transportation programs:

- **"Self-Explaining" Roads** – This design perspective requires roadways to be designed and built so that road users readily understand what is required of them in terms of vehicle speed, traffic flow, passing, lane change, etc.
- **Driving Simulators and Infrastructure Design Guidelines** – There is growing international interest in using driving simulators in conjunction with road validation studies to help define the content of guideline documents.
- **Interdisciplinary Roadway Research Teams** – The regular use of combined research disciplines (e.g., highway designers, traffic engineers, human factors psychologists, software and hardware personnel, and technicians) on roadway projects is a strategy that is becoming more widespread in Europe.
- **Speed Management** – All European countries visited dedicate a good portion of their research effort into speed management with excellent results. The reduction of speed on American highways would make a significant contribution to the reduction of fatalities and crashes.

continued...



- **Human-Centered Focus** – This way of thinking considers the capabilities, limitations, and requirements of human users in the design, implementation, and operation of roadway infrastructure systems.
- **Cognitive Models** – Little effort has been expended world-wide to develop behavioral models that help us understand why drivers and pedestrians do the things they do. The development of these models would provide considerable value to highway designers, highway planners, and traffic engineers as well as behavioral researchers
- **Top-Down Human Factors Direction** – With the increasing awareness of the human-centered perspective and of the importance of human-centered research, a high-level group in FHWA could be formed to oversee and coordinate the behavioral activities of transportation related projects and issues.

Roadway Deaths Up After 9/11

Though Americans may have been skittish about flying in the aftermath of 9/11, research in UMTRI's Human Factors Division has shown that driving on the nation's roadways was certainly no safer. In the three months following the attacks, there were 1,018 more traffic fatalities than projected based on trends for earlier months in 2000 and 2001—9 percent more deaths than expected.

Furthermore, the largest increase occurred on local roads, not interstate highways that would be the main alternative to flying. Local roads, both urban and rural, accounted for 45 percent of the increase in traffic deaths. Michael Sivak, head of UMTRI's Human Factors Division, says, "This suggests that a substantial proportion of the people who decided not to fly after September 11 did not drive to the destination they originally intended, but instead increased local, short-trip driving."

Estimates indicate that for the last three months of 2001, compared with 2000, there was an increase of 4 percent in miles traveled on rural interstates over what would have been expected based on January to August trends for these two years, according to Sivak and Michael Flannagan, research associate professor in the Human Factors Division. However, fatalities on these roads increased by just 1 percent more than expected. Flannagan says, "It may be that those who did replace flying with a trip on rural interstates to their

original destination—perhaps middle-aged business people—were less risky than the average driver—as middle-aged business people would tend to be.”

Sivak and Flannagan also found no increase in driver fatalities in relation to passenger deaths, suggesting that a large portion of flights not taken—possibly business trips—were not replaced by solo road trips to the same destination, but by leisure road trips with multiple passengers, such as family members, similar to typical driving across the nation.

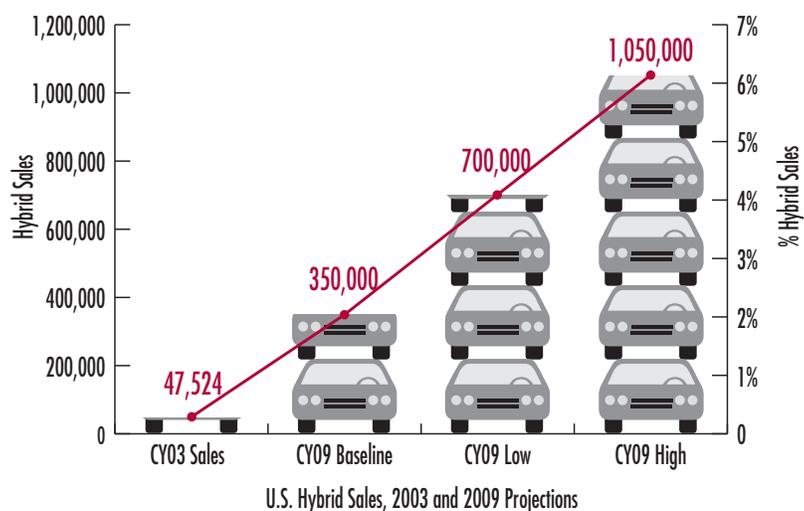
Finally, the researchers found that pedestrians and bicyclists bore a disproportionate share of the increased road fatalities following 9/11. “This is consistent with the increase in fatalities primarily on local roads and provides further evidence against a simple shift from flying to driving on rural interstates,” Sivak said.

This research was published in *Transportation Research Part F: Traffic Psychology and Behaviour*, volume 7, issues 4–5. For a related story, see “Flying and Driving after 9/11” in volume 33, number 3 of *UMTRI Research Review*.

NCEP Supports Tax Credit Based on OSAT Study

Vehicles with gas-electric hybrid and advanced diesel powertrains could capture nearly 11 percent of the U.S. light vehicle market by 2009, but because most of these new drive trains are being built overseas, a consumer shift to hybrids could cost the U.S. manufacturing jobs. To counter this effect, the National Commission on Energy Policy (NCEP)¹ is supporting a proposed tax credit for U.S. manufacturers to convert existing automotive parts and assembly plants to the production of fuel-efficient advanced technology powertrain components and vehicles. The recommendation is based on a study conducted by UMTRI’s Office for the Study of Automotive Transportation and the Michigan Manufacturing Technology Center for the NCEP and the Michigan Environmental Council.

The report, “Fuel-Saving Technologies and Facility Conversion: Costs, Benefits, and



Just under 50,000 hybrid cars were sold in the United States in 2003. Projections for 2009 are more than 20 times that amount.

continued...

Incentives,” was authored by Patrick Hammett, Michael Flynn, and Maitreya Kathleen Sims of UMTRI and Dan Luria of the Michigan Manufacturing Technology Center. It outlines possible scenarios for U.S. sales of vehicles with gas-electric hybrid and diesel powertrains, models their costs of production, and forecasts the likely job consequences of their increasing market share. The study projects that hybrids and advanced diesels may account for as many as 1.8 million sales in reasonably robust market of 16.6 million light vehicles in 2009.

The report projects that, without the manufacturer tax credit, more than 200,000 U.S. jobs could be lost by 2009²; nearly one-third would be in Michigan, Indiana, and Ohio. It’s in those three states that 45 percent of all vehicles are assembled and 88 percent of transmissions and diesel engines are manufactured.

“These losses include current jobs making vehicles with traditional powertrains that would be displaced by these new vehicles, as well as the failure to secure new jobs making those new vehicles with these alternative powertrains,” said Patrick Hammett, who directed the study.

One way to limit job losses is to provide an incentive to component and vehicle manufacturers to invest in U.S. production. A tooling and equipment investment tax credit for suppliers that convert capacity to components for these new powertrains, and for manufacturers that convert capacity to assemble these vehicles, could indeed yield powerful results, Hammett says.

The report examines the ramifications of such a manufacturer tax credit that covers two-thirds of the tooling and equipment investment costs, and found that such a credit could:

- Position the United States to gain share in the hybrid and advanced diesel markets
- Cause half the powertrain components to be made in the United States rather than abroad, resulting in about 10 percent fewer jobs being lost
- Induce one-quarter of the hybrid and advanced diesel vehicles that would otherwise have been made in Europe and Asia instead to be made here, saving another 15 percent of jobs

- Save at least 27,659 barrels, and up to 117,265 barrels, of oil per day, assuming that fuel savings will not be cancelled out by manufacturers backsliding in other vehicle segments
- Recoup federal tax incentives over roughly ten years through increased revenues and new jobs

You can read the study online at

<http://tinyurl.com/9wpez>

¹ The NCEP is an independent, bipartisan commission of sixteen energy experts from industry, government, academia, labor, and environmental and consumer groups.

² The report considers three different market-growth scenarios in 2009 for vehicles with gas-electric hybrid and advanced diesel powertrains. A normal growth scenario of about 3 percent would result in job losses of 38,000; a growth rate of roughly 7 percent (requiring some shift in consumer preferences) would mean a loss of 131,000 jobs; and growth of nearly 11 percent (requiring a strong shift in consumer sentiment) would result in 207,000 job losses.

Human Factors Hosts Annual Meeting of Its Industry Affiliation Program

UMTRI's Human Factors Division hosted the annual meeting for its Industry Affiliation Program in December. About 100 people attended the event in Ann Arbor. The annual meeting serves two purposes: It provides both a forum for researchers to discuss recently completed projects and an opportunity for affiliate members to suggest future research topics. The program, which began in 1987, conducts research related to vision in vehicles, and currently has 46 members.

Additional information about the Program is available at www.umich.edu/~industry/.

Safety Guides for Decreasing Highway Fatalities Available Online

The National Cooperative Highway Research Program (NCHRP) has added new documents to its Report 500 series, which offers strategies to decrease highway fatalities. The seven new guides address increasing seatbelt use and reducing collisions (specifically those involving heavy trucks, older drivers, pedestrians, and utility poles, and those occurring on horizontal curves and at signalized intersections). The report series was developed by the American Association of State Highway and Transportation Officials, the Governors Highway Safety Association, NHTSA, FHWA, and state and local transportation experts.

You can read the reports at <http://safety.transportation.org>. 

Book Chapters

Eby, D.W. 2004. "Risky driving." Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 6 p. Spielberg, Charles D. *Encyclopedia of Applied Psychology*. Vol. 1, pp. 627–632.

Streff, F.M. 2004. "Driving safety." Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 6 p. Spielberg, Charles D. *Encyclopedia of Applied Psychology*. Vol. 1, pp. 633–638.

Journal Articles

Eby, D.W.; Kostyniuk, L.P.; Molnar, L.J.; Vivoda, J.M.; Miller, L.L. 2004. "The effect of changing from secondary to primary safety belt enforcement on police harassment." Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 10 p. *Accident Analysis and Prevention* Vol. 36, no. 5 (Sept. 2004), pp. 819–828. Sponsor: Michigan Department of State, Lansing.

Kostyniuk, L.P.; Eby, D.W.; Molnar, L.J.; Miller, L.L. 2004. "Effects of standard enforcement on safety belt citations in Michigan." Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 6 p. *Transportation Research Record*. No. 1865 (2004), pp. 14–19. Sponsor: Michigan Department of State, Lansing; Transportation Research Board, Committee on Traffic Law Enforcement, Washington, D.C.

Rupp, J.D.; Schneider, L.W. 2004. "Injuries to the hip joint in frontal motor-vehicle crashes: biomechanical and real-world perspectives." Michigan University, Ann Arbor, Transportation Research Institute, Biosciences Division. 12 p. *The Orthopedic Clinics of North America*. Vol. 35 (2004), pp. 493–504. Sponsor: National Highway Traffic Safety Administration, Washington, D.C.

continued...

HOT OFF THE PRESS

Technical Reports

- Belzowski, B.; Flynn, M.S.; Edwards, M.; Ban, L.; Martin, G. 2004. *Supply chain management: new competitive realities in the automotive value chain*. Michigan University, Ann Arbor, Transportation Research Institute, Office for the Study of Automotive Transportation/ International Business Machines Corporation, Business Consulting Services, Somers, N.Y. 29 p. Sponsor: International Business Machines Corporation, Business Consulting Services, Somers, N.Y. Report No. UMTRI-2004-19.
- Blower, D.; Woodrooffe, J.; Green, P.; Matteson, A.; Shrank, M. 2004. *Characterization of pre-roll events of sport utility vehicles: data and analysis*. Michigan University, Ann Arbor, Transportation Research Institute, Transportation Safety Analysis Division. 65 p. Sponsor: TRW Automotive, Livonia, Mich. Report No. UMTRI-2004-16.
- Blower, D.; Matteson, A.; Shrank, M. 2004. *Motor carrier type and factors associated with fatal bus crashes*. Michigan University, Ann Arbor, Transportation Research Institute, Center for National Truck Statistics, Engineering Research Division, Truck and Bus Safety Analysis Division. 17 p. Sponsor: Federal Motor Carrier Safety Administration, Office of Data Analysis, Washington, D.C. Report No. UMTRI-2004-3.
- Blower, D.; Matteson, A.; Shrank, M. 2004. *Motor carrier type and factors associated with fatal bus crashes 1999 and 2000*. Michigan University, Ann Arbor, Transportation Research Institute, Center for National Truck Statistics, Engineering Research Division, Truck and Bus Safety Analysis Division. 19 p. Sponsor: Federal Motor Carrier Safety Administration, Office of Data Analysis, Washington, D.C. Report No. UMTRI-2004-20.
- Eby, D.W.; Vivoda, J.M. 2004. *A study of Michigan safety belt use surrounding the May mobilization, 2004*. Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 67 p. Sponsor: Michigan Office of Highway Safety Planning, Lansing. Report No. UMTRI-2004-24.
- Hagan, M.; Winkler, C. 2004. *Work-zone safety ITS: technical analysis and system proposal*. Michigan University, Ann Arbor, Transportation Research Institute, Engineering Research Division. 27 p. Sponsor: Federal Highway Administration, Washington, D.C. Report No. UMTRI-2004-15.
- Matteson, A.; Blower, D. 2002. *Interstate commerce commission financial data sets from 1977–1993*. Michigan University, Ann Arbor, Transportation Research Institute, Center for National Truck Statistics. 46 p. Sponsor: Transportation Department, Bureau of Transportation Statistics, Washington, D.C. Report No. UMTRI-2002-11.
- Molnar, L.J.; Eby, D.W. 2004. *Final report: review of Michigan's safe community program and recommendations for improvement*. Michigan University, Ann Arbor, Transportation Research Institute, Social and Behavioral Analysis Division. 43 p. Sponsor: Michigan Office of Highway Safety Planning, Lansing. Report No. UMTRI-2004-13.
- Schoettle, B.; Sivak, M.; Flannagan, M.J.; Kosmatka, W.J. 2004. *A market-weighted description of low-beam headlighting patterns in the U.S.: 2004*. Michigan University, Ann Arbor, Transportation Research Institute, Human Factors Division. 17 p. Sponsor: Michigan University, Ann Arbor, Industry Affiliation Program for Human Factors in Transportation Safety. Report No. UMTRI-2004-23.
- Sims, M.K.; Flynn, M.S.; Senter, R., Jr.; Alkire, K.F.; Humphries, D.E., Jr.; Wujciak, M.; Miller, E. 2004. *Establishing production in North America: challenges for overseas assemblers and suppliers and implications for the domestic automotive industry*. Caggemini, Detroit, Mich./ Michigan University, Ann Arbor, Transportation Research Institute, Office for the Study of Automotive Transportation. 40 p. Sponsor: Caggemini, Detroit, Mich. Report No. UMTRI-2004-2.
- Sivak, M.; Schoettle, B.; Flannagan, M.J.; Minoda, T. 2004. *Optimal strategies for adaptive curve lighting*. Michigan University, Ann Arbor, Transportation Research Institute, Human Factors Division. 24 p. Sponsor: Michigan University, Ann Arbor, Industry Affiliation Program for Human Factors in Transportation Safety. Report No. UMTRI-2004-22. **RR**

CONFERENCES & EVENTS

TRANSPO '04

December 6–8, Jacksonville,
Florida www.itstranspo.org

TRB 84th Annual Meeting

January 9–13, Washington, D.C.
www.nationalacademies.org/trb/

How Consensus Standards Improve ITS

January 27–28, Orlando, Florida
[www.apta.com/conferences_](http://www.apta.com/conferences_calendar/consensus)
[calendar/consensus](http://www.apta.com/conferences_calendar/consensus)

World of Concrete

February 17–21, Las Vegas, Nevada
www.worldofconcrete.com

ITE 2005 Technical Conference

February 27 – March 2, Las Vegas, Nevada
www.ite.org/meetcon/

Seventieth Road Safety Congress

February 28 – March 2, Brighton, England
www.rospa.org.uk/road

Lifesavers 2005

March 13–15, Charlotte, North Carolina
www.lifesaversconference.org

Workshop on Intelligent Transportation

March 15–16, Hamburg, Germany
wit.tu-harburg.de

Australian Roads Summit

March 22–23, Brisbane, Australia
www.acevents.com.au/roads2005/

Future Truck and Bus Safety Research

Opportunities Conference
March 23–24, Washington, D.C.
www.trb.org/calendar

GIS for Transportation Symposium

April 3–6, Lincoln, Nebraska
www.gis-t.org

Visibility and Traffic Control Devices

April 4–5, Washington, D.C.
www.usd.edu/coglab/symposium

SAE 2005 World Congress

April 11–14, Detroit, Michigan
www.sae.org/congress

International Transportation Finance Summit

April 17–19, Nice, France
www.ibtta.org/website/article.asp?id=528

Traffex 2005

April 19–21, 2005, Birmingham, England
www.traffex.com

Transportation Planning Applications

April 24–28, Portland, Oregon
www.trb-portland-05.com/index.html

Sixteenth Transportation Research Conference

April 26–27, St. Paul, Minnesota
www.cts.umn.edu/events/rescon/

ITS America 2005 Conference

May 2–4, Phoenix, Arizona
www.itsa.org/annualmeeting.html

Traffic and Road Safety Congress

May 5–7, Ankara, Turkey
www.trodsa.com

Canadian Transportation Research Forum

May 8–11, Hamilton, Ontario, Canada
www.ctrf.ca/2005_annual.htm

Census Data for Transportation Planning

May 11–13, Irvine, California
www.trb.org/conferences/censusdata

ITS Canada Conference

May 15–17, Quebec City, Canada
www.itscanada.ca/quebec2005

APTA Bus and Paratransit Conference

May 15–18, Columbus, Ohio
www.apta.com/meetings/bus/

Telematics Detroit 2005

May 16–17, Livonia, Michigan
www.telematicsdetroit.com

Women in Transportation Conference

May 26–27, Scottsdale, Arizona
www.wtsnational.org

continued...

CONFERENCES & EVENTS

ASHE Annual Meeting

June 2-5, Pittsburgh, Pennsylvania
www.ashe2005.org

Canadian Multidisciplinary Road Safety Conference

June 5-8, Fredericton, Canada
www.carsp.ca/cmrrsc.htm

IEEE Intelligent Vehicles Symposium

June 6-8, Las Vegas, Nevada
www.ieeeiv.org

ESV 2005

June 6-9, Washington, D.C.
www-esv2005.nhtsa.dot.gov

ARC-CSI Crash Conference

June 7-10, Las Vegas, Nevada
www.crashconferences.com

International Road Federation Meeting

June 14-18, Bangkok, Thailand
www.irf2005.co

RESNA 2005

June 23-27, Atlanta, Georgia
www.resna.org

Driving Assessment 2005

June 27-30, Rockport, Maine
ppc.uiowa.edu/driving-assessment

Conference of Minority Transportation Officials

July 9-13, Atlanta, Georgia
www.comto.org

School Bus EXPO 2005

July 30-August 3, Reno, Nevada
www.stnonline.com/stn/expo

ITE 2005 Annual Meeting

August 7-10, Melbourne, Australia
www.ite.org/annualmeeting

Conference on Concrete Pavements

August 14-18, Colorado Springs, Colorado
www.concretepavements.org

ATSSA Mid-Year Meeting

August 25-27, Hilton Head, South Carolina
www.atssa.com/meetevents

GHSA Annual Meeting

August 28-31, Norfolk, Virginia
www.statehighwaysafety.org

AAAM Annual Scientific Conference

September 11-14, Boston, Massachusetts
www.carcrash.org/Ancmt2005.pdf

Intelligent Transportation Systems

September 13-16, Vienna, Austria
www.itsc2005.at

ARTBA Annual Convention

September 13-16, Palm Beach, Florida
www.artba.org

Transportation Association of Canada Conference

September 18-21, Calgary, Canada
www.tac-atc.ca/english

HFES Annual Meeting

September 26-30, Orlando, Florida
www.hfes.org

International Symposium on Automotive Lighting

September 27-28, Darmstadt, Germany
www.lt.e-technik.tu-darmstadt.de/PAL/ISAL2005_eng1.htm

ETC 2005: European Transport Conference

October 3-5, Strasbourg, France
www.aetransport.co.uk

Crash Reconstruction Conference

October 5-7, Wilmington, Delaware
www.crashconference.com

International Conference on Road Safety

October 5-7, Warsaw, Poland
www.vti.se/templates/Page_3566.aspx

IEE SMC 2005

October 10-15, Waikoloa, Hawaii
<http://ieeesmc2005.unm.edu> 

Transportation Tidbits

- Work on America's first underwater highway tunnel began on November 30, 1866, in Chicago, Illinois. The 1,500-foot tunnel ran under the Chicago River and took three years and over \$500,000 to complete. It had two roadways, each 11-feet tall and 13-feet wide, and a separate footway 10-feet wide and 10-feet tall. In 1907, the tunnel was lowered to provide better air circulation, and allowed regular automobile traffic for the first time.
- The first air-conditioned car debuted on November 4, 1939, at the Fortieth National Automobile Show in Chicago, Illinois. A Packard prototype featured a system that cooled or heated the air to a driver-selected temperature. It then dehumidified, filtered, and circulated the air to create a comfortable environment. The unit was located behind the rear seat of the Packard, where a special air duct accommodated separate compartments for the refrigerating and heating coils. Air-conditioning was well received at the show, but it was not accessible to the average American until its price dropped significantly several decades later.
- The U.S. Congress passed the Clean Air Act on December 17, 1963. This sweeping set of laws designed to protect the environment was the first legislation that placed pollution controls on the automobile industry.
- On October 15, 1964, the longest skid marks on record were created on the Bonneville Salt Flats testing area in Utah. Craig Breedlove was attempting to set a new one-mile land-speed record, and inadvertently created the skid marks after losing control of the Spirit of America jet-powered car. The vehicle took nearly six miles to decelerate from an initial speed of well over 400 mph, and began skidding moments into the run.
- The first American-made small car with front-wheel drive was introduced on December 5, 1977. The Plymouth Horizon took advantage of technical advances in drive technology that reduced the size and cost of front-wheel drive systems.
- On October 17, 1994, taxicab driver Jeremy Levine returned to London, England, from a round-trip journey to Cape Town, South Africa, marking the world's longest taxi ride. Passengers Mark Aylett and Carlos Aresse paid approximately \$65,000 for the 21,691-mile trip. The route ran through Eastern Europe, Turkey, Syria, Jordan, and into Africa. **RR**

Source: This Day in Automotive History,
www.historychannel.com/tdih



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