



Climate change policies driving innovation

Policies to address climate change and energy use are driving innovations that could improve mobility and lower costs for most people, said Professor **Daniel Sperling** at the CTS Fall Luncheon on December 7.



Daniel Sperling

Sperling, a professor of civil engineering and environmental science and policy, is the founding director of the Institute of Transportation Studies at the University of California, Davis. He also serves on the California Air Resources Board (CARB), where his responsibilities include oversight and design of the state's climate change,

alternatives fuels, vehicle travel and land-use, and zero-emission vehicle programs.

Sperling began his remarks with three messages:

- Surface passenger transportation is one of the least innovative sectors in our society.
- The surface passenger transportation system is failing us economically, environmentally, and socially.
- The transportation community and its leadership are remarkably unengaged in broader issues affecting transportation and society.

Although vehicles themselves are now far superior, there has been little innovation in the surface passenger system as a whole over the

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Speakers discuss sustainability and the bottom line

Sustainable practices can have a positive impact on the environment and on freight and logistic providers' bottom line, but they don't come without specific challenges, according to speakers at the 14th Annual Freight and Logistics Symposium. The December 3 event brought together representatives from the public and private sectors to address the economics of sustainable practices for the transportation industry.

Laurie McGinnis, director of CTS, noted that the definition of sustainability has been evolving to a more holistic one that includes environmental, economic, and societal issues. She joined **Meg Duncan**, president of the Council of Supply Chain Management Professionals—Twin Cities Roundtable, and **Ron Have**, president of the Minnesota Freight Advisory Committee, to give opening remarks. **Gina Baas**, CTS assistant director for education and outreach, moderated the event.



Kevin Jones, Cheryl Bynum, Wayne Johnson, Don Scott, and Dan Murray

Bill Gardner, director of freight planning and development at the Minnesota Department of Transportation (Mn/DOT), kicked off the symposium by apprising the audience of the department's sustainability efforts.

The forum then turned to a panel discussion offering national perspectives on sustainability. **Dan Murray**, vice president of research with the American Transportation Research Institute, moderated.

Simple, common-sense fixes can add up to big environmental gains, said the first panelist,

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Conference to look at sustainability and pavements

Sustainability is the focus of a plenary session at the 15th Annual TERRA Pavement Conference. The event will be held February 10 on the St. Paul campus.

Professor **Mark Seeley** of the Department of Soil, Water, and Climate will present "Trends in Climate Change that Impact Road Construction and Maintenance."

Other sessions will look at alternatives to paving, in-place recycling, and concrete pavement rehabilitation.

The conference is sponsored by TERRA in cooperation with the Minnesota Department of Transportation, CTS, and a number of other organizations.

TERRA, the Transportation Engineering and Road Research Alliance, is a dynamic partnership of government, industry, and academia that continuously advances innovations in road engineering and construction.

For more information about the conference, call 612-624-4754 or visit the TERRA website at www.terraroadalliance.org/events. **CTS**

U of M team exchanges ideas, explores collaboration in Singapore

A delegation that included representatives from the University of Minnesota, the U.S. Senate Committee on Environment and Public Works, and the Oregon Department of Transportation traveled to Singapore in October for an exchange of ideas about land use, transportation policy, and pricing.

The head of the delegation was **Lee Munnich**, senior fellow and director of the State and Local Policy Program at the Humphrey Institute of Public Affairs. Other delegates included CTS director **Laurie McGinnis**; **Adeel Lari** (director of innovative finance), **Ferroll Robinson** (research fellow), and **Barbara Rohde** (senior policy analyst) with the Humphrey

Institute; **James Whitty**, manager of the Office of Innovative Partnerships and Alternative Funding at the Oregon DOT; and **Alex Herrgott** and **Paul Schmid**, Congressional staff members. The Oregon DOT guided the nation's first mileage-based user-fee pilot project in Portland in 2006–2007.

The delegates met with officials from Singapore's Land Transport Authority and Ministry of Transport, who described the country's land transport system and master plan. With a population of 5 million and a scarcity of land, Singapore manages



Lee Munnich

transportation demand through a combination of ownership and usage controls, including electronic road pricing.

McGinnis gave the welcome and led introductions in a distinguished speakers panel session. Munnich, who was a member of a National Cooperative Highway Research Program team that studied road user charges, gave a presentation about the road pricing experience in the United States.

McGinnis also met with faculty and researchers from two of Singapore's universities to learn about their capabilities, expertise, and funding and to explore collaboration opportunities with U.S. researchers. **CTS**

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past 60 years, Sperling said. The internal combustion engine still dominates, and transit services are “functionally unchanged—still mostly buses and old subways,” he said. In contrast, information technology out of Silicon Valley has transformed many sectors of society.

Economically, it costs more than \$8,000 on average, every year, to operate a vehicle. Environmentally, the United States consumes 14 million barrels of oil every day for transportation—the majority of that for light-duty passenger vehicles—and emits about 12 billion pounds of CO₂. Regarding social equity, significant numbers of people don't have access to cars (the young, low-income, elderly), but the current system, with mass transit serving about 2 percent of passenger-miles traveled, offers little choice, Sperling said.

At the same time, the transportation community's political influence has declined. “Years ago we had the compelling idea of the interstate highway system,” Sperling said, but today there is little engagement by the transportation community with the larger issues of health, security, social equity, education, and even the environment. “Is it any surprise that politicians increasingly ignore transportation?”

These three messages, he noted, are almost identical to what he presented in a 1994 CTS Luncheon presentation. What's changing now, he said, is the focus on reducing greenhouse gases (GHG) and energy use and the opportunities this

creates to spur innovation.

Vehicles are already on a trajectory to transformation, Sperling said. A national fuel-economy and greenhouse gas standard enacted in 2009 increases mileage requirements for cars and trucks by 2016, and CARB and the U.S. Environmental Protection Agency are proposing further reductions in oil use and GHG for 2017–2025. The auto industry is committed to change and is investing in research and development. “Companies are going to be changing vehicles in some very important ways,” he said.

More mobility services for travelers are also coming. Car sharing, bike sharing, dynamic ridesharing, smart carpooling, smart jitney systems offering personalized, real-time service—companies are doing all these things, he said. Combined, a broader set of mobility services could begin to replace the need for some vehicles.

Policies aimed at vehicle-miles traveled (VMT) and land use are also moving forward. A 2008 California law requires metropolitan areas to reduce greenhouse gas emissions from passenger travel; it sets targets for a 7 percent reduction in VMT per capita by 2020 and a 15 percent reduction by 2035. Local governments will decide how to reach the targets: San Francisco, for example, plans to create hundreds of miles of high-occupancy toll lanes, he said.

Cities that adopt a plan will receive expedited environmental reviews. But a bigger carrot—money—is needed,

Sperling said, so the state is exploring ways to “rejigger the transportation funding formulas” to reward local governments that do well. “So instead of increasing money to cities that increase their VMT, we'll give money to them for reducing VMT,” he explained. “How's that for a revolutionary idea?”

No other law or major program has called for specific reductions in VMT in the history of the country, Sperling said. Many California policies are imitated nationally and internationally, he noted.

More-efficient vehicles, more mobility services, and better land-use management—joined with bus rapid transit, conventional transit, even personal rapid transit—could result in “a transportation system that for most people would create a higher level of service and be cheaper,” Sperling said. That \$8,000 annual budget could buy access to a range of vehicles—a pickup or sports car on the weekend, for example—and smarter transit options tailored to meet individual needs.

“Transportation leaders have to start thinking of their mission in a broader way, more than just building and managing and operating roads and buses,” Sperling said. “Otherwise, we're going to become increasingly marginalized, and that's bad for everyone.”

Watch the presentation at www.cts.umn.edu/Events/Luncheon/2010/fall. **CTS**

Kevin Jones, divisional vice president of supply chain with Walmart's Northern Plains Division.

Companies that make environmental improvements to align themselves with sustainability goals often see their efforts pay off economically, Jones said.

He told attendees that Walmart collaborates, even with its competition, on sustainability efforts because of the issue's importance. In fact, he characterized the retailer's sustainability efforts as the biggest initiative executives there have undertaken in the past 10 years.

Efforts formally began in 2005 with a goal to increase fleet efficiency 25 percent by 2008. The retailer met and surpassed that goal. (Efficiency was measured in terms of cases shipped per gallon of fuel burned.)

The retailer now plans to double fleet efficiency by 2015, Jones said. To meet that target, logistics managers are looking to improve packaging, streamline routing, use alternative fuels, and run more miles per gallon. Walmart is also developing a hybrid-assist truck as well as trucks that run on liquid natural gas.

"Clearly, our stance is you can be sustainable and save money," Jones said. "We've recognized that because of our size, the impact can be great. So we've taken our responsibility seriously."

Governmental guidance doesn't have to be onerous when it comes to sustainability, said **Cheryl Bynum**, director of the U.S. EPA's Smartway Program. A freight partnership, Smartway was launched in 2004 with the aim to reduce fuel consumption and emissions without imposing regulations. Shippers and carriers—whether trucking, rail, or multimodal—can join the program.

Wayne Johnson, who chairs the National Industrial Transportation League's Highway Transportation Committee, praised the voluntary approach of Smartway. "In this economy, for the government to mandate anything is the silliest thing I've ever heard," he said. "If you mandate something on the freight economy, people will go broke."

Don Scott, director of sustainability with the National Biodiesel Board, supports the use of biodiesel as a sustainable, domestic fuel to replace petroleum. "We could spend billions in our own communities on domestic fuels, and that creates jobs and economic activities in Minnesota and in the rest of the United States," he said.

The symposium's second panel looked at the impacts of sustainability on business models. It was moderated by **Carissa Schively Slotterback**, assistant professor at the Humphrey Institute of Public Affairs at the University of Minnesota.

Richard Cox, branch manager at Kuhene + Nagel, which books freight space for ship and air customers, said the recession changed how the ocean freight industry operated. For example, some ships began operating at less than maximum power to reduce fuel costs. But the impacts of slower-moving vessels ripple down the supply chain, affecting those ordering the products as well as their supply partners. "Longer travel time will mean you'll have to figure in higher cost of inventory because it takes longer for goods to get where they're going. You'll have to hold them longer, and might have to order more," Cox said.



Carissa Schively Slotterback



Joyce Brenny

David Simpson, principal of David P. Simpson Consultants LLC, said that as more Americans move from the suburbs into their city's downtown core, freight and logistics providers need to plan for new distribution hubs as ways to get consumer goods into and out of those areas.

The final presenter, **Joyce Brenny**, president of Brenny Transportation Inc. and Brenny Specialized Inc., headquartered in St. Joseph, Minnesota, said small trucking companies support sustainable practices, but they often can't afford to implement them.

Around 80 percent of trucking companies operate 20 or fewer trucks, she said. "It's hard to absorb the cost impacts and speed at which sustainability is coming at us."

She also said the process to become a certified Smartway partner is quite involved. "It's very time consuming to educate ourselves on what we need to do to be compliant," Brenny said. "Please remember we're in this together and that most of the small trucking companies are currently as green as we can afford to be."

The event was sponsored by CTS in cooperation with Mn/DOT, the Minnesota Freight Advisory Committee, the Council of Supply Chain Management Professionals-Twin Cities Roundtable, the Metropolitan Council, the Transportation Club, and the Trucking Industry Mobility and Technology Coalition.

Presentations are available online, and a proceedings will be published in February. To receive a copy, call CTS at 612-626-1077 or visit www.cts.umn.edu/publications. **CTS**

Forum explores trends in scholarly publishing

Last month **David Levinson**, Braun/CTS chair and associate professor in the Department of Civil Engineering, participated in the forum "Current Publishing and Future Publishing Practices" organized by the University Libraries' Scholarly Communication Collaborative.



David Levinson

Levinson is editor-in-chief of the *Journal of Transport and Land Use* (JTLU), a free, open-access, peer-reviewed journal sponsored by CTS.

The purpose of the forum was to explore trends in scholarly publishing with faculty editors. Levinson shared the experiences of starting and running the journal and offered his perspective on its challenges. The forum was recorded and is available online at <https://umconnect.umn.edu/p70705905/>.

In related news, **Arlene Mathison**, CTS director of digital information and library services, and **Anne Shelley**, CTS assistant librarian, demonstrated Open Journal Systems (OJS), the open-source publishing system CTS uses to publish JTLU, for the University Libraries' Emerging Technology Expo on November 16. They showed how the OJS platform works and why it was chosen, and the services that CTS provides for the journal. **CTS**

Fall seminars online

The performance of pervious concrete in a cold climate was one of the topics featured in the fall 2010 CTS Seminar Series. University of Minnesota faculty as well as experts from institutions around the country presented the seminars, held every week on campus and webcast live.

Pervious concrete is specially formulated to contain myriad tiny pores that allow water to drain through to the subgrade instead of running off into storm drains. It offers potential benefits in stormwater management, especially

for large paved areas such as parking lots. University of Minnesota civil engineering (CE) associate professor **Lev Khazanovich** has been studying the drainage properties and durability of pervious concrete in work sponsored by the National Ready Mixed Concrete Association. He presented some of his team's findings at an October seminar.

In a September seminar, CE professor **Gary Davis** described the development of



Lev Khazanovich

analysis methods for data that are being collected by the second national Strategic Highway Research Program.

Other topics covered during the semester ranged from the economic impact of airports to camera networks for security and traffic applications.

The presentations were archived as streaming video and are available at www.cts.umn.edu/Events/SeminarSeries. The site also contains summary articles of many of the seminars. In addition, many seminars are available through iTunes U. **CTS**

Registration under way for luncheon, career expo

Susan A. Ferguson will present "Driver Alcohol-Detection Systems: The End of Drunk Driving?" at the CTS Winter Luncheon on February 15. She is the program manager for a multimillion dollar research program investigating these technologies. To register, contact **Nicole**

Freese, 612-624-3708, cceconf5@umn.edu, or visit www.cts.umn.edu/events/Luncheon/2011/winter.

The 2011 Transportation Career Expo will be held March 1 from 4:30 to 7:15 p.m. on the Minneapolis campus. The expo connects companies, agencies, and

professional organizations with students and recent graduates. A registration form is enclosed. For more information, contact **Shawn Haag** at 612-625-5608, haag0025@umn.edu, or visit www.cts.umn.edu/Events/CareerExpo. **CTS**

Upcoming events *To see other events or publicize yours, visit www.cts.umn.edu/Events.*

Feb. 10	15th Annual TERRA Pavement Conference, St. Paul. See www.terraroalliance.org/events .	Apr. 27–29	Minnesota Alcohol Traffic Safety Association Conference, St. Cloud. See www.matsa.us .
Feb. 15	CTS Winter Luncheon with Susan Ferguson , Minneapolis. See www.cts.umn.edu/Events/Luncheon .	May 24–25	22nd Annual CTS Transportation Research Conference, Crowne Plaza, St. Paul. See www.cts.umn.edu/Events/ResearchConf .
March 1	Transportation Career Expo, Minneapolis. See www.cts.umn.edu/Events/CareerExpo .	July 28–30	World Symposium on Transport and Land Use Research, Whistler, British Columbia. See www.wstlur.org . CTS
March 2	55th Annual Asphalt Contractors' Workshop / Quality Initiative Workshop, Brooklyn Center, Minn. E-mail info@mnapa.org .		
Apr. 12–13	Minnesota Spring Maintenance Training Expo, St. Cloud. See www.mnltap.umn.edu/Events/SpringMaintenanceExpo .		
Apr. 17–21	National Association of County Engineers Annual Conference, Minneapolis. See www.countyengineers.org .		

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CTS Web site: www.cts.umn.edu/Education/Careers/JobPostings

LinkedIn: www.linkedin.com/groups?gid=2316997&trk=hb_side_g