Kee Yeon Hwang is president of the Korea Transport Institute (KOTI) and a USC School of Policy, Planning, and Development (SPPD) alumnus who led a remarkable transformation of downtown Seoul. His project not only demonstrated the positive impact of urban renewal from a social, environmental and economic perspective, but also demonstrated cutting edge transportation theories about traffic flows.

“Keith” Hwang received his PhD in urban planning at USC in 1992. Visiting USC this past January, he described his literally groundbreaking work at a METRANS Transportation Center Research Seminar, giving a special lecture on “Cheonggye Stream Restoration and Downtown Revitalization in Seoul.”

Cheonggye flows for only a few miles though the heart of Seoul, but its significance goes back some 600 years in Korean history. In fact, the water source helped King Taejo of the Joseon Dynasty choose the location for the new capital during the 14th century.

“We like our mountains behind us so we can block invasions, and then we always have to have water in front,” Hwang said. Over the years, the seasonal stream was developed into a canal system in the heart of the capital city.

After the Korean War, impoverished refugees built along its banks, while the stream became little more than an open sewer. It was covered first by a roadway and later by an elevated expressway.

continued on page 3

The California Transportation Foundation (CTF) has named the METRANS Transportation Center its “Organization of the Year.” The Award will be presented June 15 at CTF’s 22nd Annual Transportation Awards Luncheon in Sacramento.

CTF promotes transportation education throughout the state. Its membership represents the field’s major engineering and consulting firms that build California’s highways and transit systems. This is the first time the CTF Organization of the Year distinction, usually given to a company, has been given to a university research center. However, CTF executive director Sarah West points out that METRANS’ research, education and outreach initiatives are making significant contributions to the field.

“Our selections represent the best of the projects, programs and people who made a positive difference for California transportation in 2010,” she says.

“The important thing to me,” remarks METRANS director Genevieve Giuliano, “is that we’re educating our students in a way that these professionals find very valuable. Students go out with the skills sought by practitioners in the field.”

As a US Department of Transportation University Transportation Center, METRANS funds research on a wide range of topics at USC and CSULB through an annual proposal process. It engages students through research, seminars and other activities. Other METRANS programs include conferences, public forums and publications, as well as workforce development and professional training. METRANS students have been placed in universities as researchers or faculty members, in public agencies, in transportation consulting firms and in the offices of elected officials.
METRANS is sponsoring a new, interactive online series exploring how shippers and their agents decide which ports to use for their cargo. The series is called “Cargo and Jobs: Still Ours to Lose?” and runs in three one-hour webinars May 20, June 3 and June 17, 2011. Each webinar starts at noon PDT.

“The program follows up on key questions raised by last October’s Point/Counterpoint event about possible local consequences of the Panama Canal’s expansion,” explains METRANS deputy director Marianne Venieris. She is also executive director of the Center for International Trade and Transportation (CITT), which is broadcasting the program from the CSULB campus.

“At the Point/Counterpoint event, a key comment that stood out for most stakeholders was when Professor Mary Brooks told the audience that Southern California’s dominant position, handling such a large share of America’s inbound cargo, was ‘Southern California’s to lose.’” Venieris says. “We need to know what that means, because at stake are not just jobs and profits at the Port of Long Beach and Port of Los Angeles, but the larger Southern California logistics economy.”

The moderator for the series is Mat Kaplan, senior director of technology and development at CSULB’s College of Continuing and Professional Education and host of CITT’s ContainerCast podcasts. Kaplan will interview expert guests about how shippers make decisions about moving goods through Southern California and to what extent the San Pedro ports are (or will be) competitive with alternative trade gateways. CITT director of research Dr. Thomas O’Brien set the stage in the first webinar and will offer a summary in the final session.

The first installment, “How Shippers Choose Ports,” took place May 20 and examined the way factors such as price, speed and reliability make local ports competitive compared to other ports. Joey Carnes (right), chairman and CEO of MIQ Logistics, responded to questions such as how shippers vary in the needs and expectations that affect their decisions and how much “discretionary” cargo is really at risk when the Canal’s expansion allows larger vessels to travel directly from Asia to East Coast ports.

The June 3 presentation asked, “Is Southern California Competitive?” It looked at how diverse local stakeholders found common ground and have been working together to address customer needs and priorities. What actions have been taken to enhance the system capacity of ports, rail and highways? How effectively has the industry been communicating the advantage of West Coast gateways to shippers and ocean carriers? The speaker was Fran Inman (right), senior vice president of Majestic Realty Co. and member of the California Transportation Commission.

Finally, the June 17 webinar takes up the “Challenges Ahead” in terms of remaining tasks and obstacles. What steps must be taken to keep pace with improvements at other West Coast, Gulf Coast and Atlantic harbors? How can local community, regulatory, security and environmental concerns be addressed to accelerate the necessary work? Featured speakers are John McLaurin, president of the Pacific Merchant Shipping Association and Richard Steinke (above), executive director of the Port of Long Beach.

Additional information is available on the CITT website (www.ccpe.csulb.edu/citt).

METRANS OUTREACH

Outreach Briefs

National Urban Freight Conference
METRANS will hold the 4th National Urban Freight (NUF) Conference October 12-14, 2011 at the Hyatt Regency Long Beach. The conference examines the impacts of goods movement and international trade in metropolitan areas. Abstracts are due by June 14. METRANS is seeking sponsorships to help support the Conference. See www.metrans.org/nuf/2011.

Trade and Transportation Online Networking
METRANS News readers are invited to join the CITT Alumni Network, a LinkedIn group for the Center for International Trade and Transportation. The community has more than 400 members and offers networking, announcements, employment opportunities and discussions on current topics. www.linkedin.com/groups?gid=2569782
Noisy, polluted and congested, the surrounding neighborhood hit hard times, suffering from crime, respiratory diseases, depressed land values and deteriorating buildings. With rapid industrialization, Seoul and its suburbs grew dramatically until the region had 22 million people—almost half the national population. But at the heart of the city, the area around Cheonggye was hollowing out as tens of thousands of residents moved away.

Just as development around Cheonggye Stream had symbolized Seoul’s modernization, its decline too carried a larger message. City residents came to realize they had prioritized economic growth at the expense of their environment and legacy, Hwang told the seminar. “We had to shift our paradigm from development to conservation.”

Resurrecting the Heart of the City
An opportunity was presented when critical structural defects were found in the expressway. In 2002, former Hyundai construction executive Lee Myung-bak ran for mayor on a platform that ironically included removing old roads and reviving the stream. (Lee became Korea’s president in 2008.)

At the time, Hwang was a senior research fellow at the Seoul Development Institute. He was appointed director of SDI’s Research Center for Cheonggye Stream Restoration. He led development of the master plan for both the stream restoration and redevelopment of the surrounding central business district (CBD).

Work began in July 2003 at an accelerated pace (by dividing the work into three sections) and was completed in October 2005. Total project cost was about $380 million. The expressway and roadways were cut up and 680,000 tons of debris were removed for recycling. Although historically only a seasonal watercourse, the new embankments were designed to withstand rainy-season flooding to the 200-year level. The restored stream site was designed to be a corridor friendly to both people and nature, with sidewalks, roadways and artwork in generous public spaces, while 22 pedestrian and motorist bridges re-stitched the neighborhood.

Despite skepticism of many observers, from shopkeepers to urban planners, the restoration quickly proved Hwang’s predictions. In a demonstration of “Braess’ Paradox,” removal of the elevated highway did not make city traffic worse, since people modified their routes or—better yet—switched to public transportation. During the capital’s humid summers, wind speeds along the restored watercourse have increased 50% and temperatures average 3.6 degrees lower (centigrade) than other parts of town. In the willow marsh birds, fish, insects and plants are thriving. With the restored natural environment enhanced with artwork, live performances and digital media, as many as 30,000 Koreans enjoy the area on weekends. In fact, tens of millions visited in the first few months.

“With this project finished successfully, Seoul launched a major change in its urban planning paradigm from development to sustainability,” Hwang said. “It is safe to say that this project is beyond simple construction work, but rather should be understood as a litmus test to see if Seoul can be upgraded into a globally competitive world city.”

“The restoration of the stream had vast, extensively positive effects,” he added. Business activity and real estate prices in the area have soared. Restoration and redevelopment projects are sprouting along the corridor that honor Seoul’s cultural and historical roots. More CBD renovations are expanding the green axis with wider pedestrian streets and malls, while other projects work to restore mountain views, rebuild castle walls, preserve architecture and expand public plazas.

“This is a really fascinating project,” said Genevieve Giuliano, METRANS director and SPPD senior associate dean for research. “Keith has actually implemented many of the ideas that we all talk about here.”

During his 13-year stay at SDI, Hwang was also involved with transportation demand management schemes, including congestion pricing for Seoul’s Namsan Tunnel in 1996, a bus rapid transit system implemented in 2005, and the Han river renaissance project now under construction. He received Korea’s National Medal of Honor in 2005.

Knowledge Sharing Agreement
On leave from Hongik University, Hwang now heads the Korea Transport Institute—the central government’s think tank focusing on land transport, aviation and logistics—which during his three-year tenure has three times been named “Best Research Institute” by the National Research Council for Economics, Humanities and Social Science.

Hwang was on campus in January to sign a new cooperative research agreement between KOTI and USC. The MOU recognizes the two institutions’ mutual interest in research, education, training and dissemination of knowledge in urban development and pledges collaboration in areas such as joint research, publishing and student exchanges.
For years, Burkhard Englert has been applying his mathematical tools to distributed networks. Sometimes those networks are comprised of computer servers. Sometimes they are delivery trucks.

“The tools are basically the same,” he says. “Once you find a problem, the way you solve it is by abstracting away the things that are unimportant. Once you do that, you end up with graphs and networks to analyze the same way, whether it’s a transportation system or a distributed network of computers.”

Englert is a professor in the Department of Computer Engineering and Computer Science (CECS) at California State University Long Beach. He teaches graduate and undergraduate courses on subjects such as computer security, network-centric computing and distributed systems—winning a 2009 Distinguished Faculty Teaching Award.

Englert’s first two METRANS studies focused on data and technology issues, but he has also investigated optimizing the transportation network in the LA region. Now, his new project (with Co-PI Shui Lam) considers “The Impact of Truck Repositioning on Congestion and Pollution in the LA Basin.”

“If you’re concerned about reducing pollution, how useful is an inland port? Basically, that’s resetting your network by moving a node to get a different type of connectivity,” Englert says.

Transportation models and simulations of pollution and congestion caused by port-related traffic typically focus on trucks going to and from LA/LB port terminals to delivery and pickup points. Empty repositioning routes are generally discarded in the overall analysis. “We realized we didn’t have any information about what happens to the trucks when they are not being used to either pick up or drop off a container. Nobody has data about that, he explains.

“That’s because either they aren’t recorded (because no customer is involved) or perhaps because it is business process information that is private to the companies.”

So Englert wanted to know where trucks were being parked when not in use, how much time they are being driven empty (before, between or after scheduled routes), but also how business and policy decisions might influence the choices drivers make. Instead of analyzing routes mathematically, he needed to understand calculations that might not be based on purely rational choices.

His research offered some surprises. While he expected most of the drivers to be independent owner operators, most considered themselves employed by trucking companies, even if those businesses were small. His original assumption was the drivers were taking their trucks home at night, while according to the survey (responses accounted for about 25% of trucks accessing the ports) drivers are commuting from home in private cars rather than in their rigs.

His research showed that if drayage fleets (and their customers) are not carefully coordinated along with the development of an inland port, additional pollution and congestion linked to repositioning empty trucks could be significant.

The only scenarios that reduce repositioning-related congestion and pollution require that truck parking locations are coordinated with container availability locations. Trucks would have to be based at either the seaports or the inland port, not transfer between the two.

“In the long run, economic forces likely will push [specific] drayage companies to conduct the majority of their business around one or the other,” Englert says. “How quickly this situation is reached with an inland port such as in Victorville will most likely be a function of how much of the customer base (warehouses, etc) relocates near the inland port and how fast.”

And very likely, he says, development of an inland port would initially see an increase in pollution and congestion until container storage, truck positioning and customer relocations find their balance. Banning all container pickups or drop-offs at the ports and moving all cargo to the inland port regardless of destination, for example, would only result in extra trips trucking much of it back into the LA basin—and then repositioning both trucks and empty containers back out.

“The analysis shows that this could lead to a dramatic 300% spike in congestion and pollution in the region based on repositioning-related Vehicle Miles Traveled,” he warns. “If an inland port is developed, there must be a holistic effort to coordinate the drayage fleet.”
METRANS tested the feasibility of collaborative graduate education at USC during the Spring 2011 semester, joining UTCs at University of Washington, University of Wisconsin, and Texas A&M University to offer a 10 week series of classes on freight transportation. The intent was to draw on the expertise at each university to provide students with leading edge research and practice taking place around the US. The four universities utilized videoconferencing to meet in real-time each Friday morning.

On January 18, Dr. Thomas O’Brien, METRANS associate director for CSULB programs and CITT director of research, spoke about “Institutional Issues and Port Mitigation Policies” and the difficulties implementing environmental programs because of industry business models and jurisdictional authorities.

One example is the development of the San Pedro Bay Clean Air Action Plan. “Local cities had the concerns about air pollution but only limited authority over issues that included international shipping and interstate trucking,” he explains. “So the ports had to develop their own policies and work with stakeholders on a voluntary basis.”

The speaker on January 28 was Michael Vanderbeek, manager of strategic planning for the Port of Long Beach (POLB). Vanderbeek earned his Master of Planning degree from the USC School of Policy, Planning and Development (SPPD) in 2005 and joined the port the same year. In his position, he participates in the formulation of POLB’s 10-year strategic plan, its $1 billion annual budgets and industry-leading environmental programs such as the San Pedro Bay Clean Air Action Plan.

Vanderbeek used his facility as a case study on “Leveraging Port Activity for Sustainable Economic Development.”

“The key policy question is how to balance sustainability and economic development priorities in a port city?” he said. “The answer is by leveraging port access and activity to use sustainability as a mechanism for economic development.”

The “Friday Freight” videoconference series ran from January 21 to March 11. Six sessions are archived online. Search for “freight” at http://ondemand.usc.edu/SPPD.

METRANS EDUCATION
UTCs Collaborate on “Friday Freight” Videoconference Series

METRANS EDUCATION
Seminar Showcases Student Transportation Research

The Transportation Student Research Showcase was held February 9 featuring work by USC doctoral students in the School of Policy, Planning, and Development and the School of Engineering’s Daniel J. Epstein Department of Industrial and Systems Engineering.

“How does school quality affect destination choice of journeys to school?” was presented by SPPD PhD candidate Sylvia He, who is advised by Dr. Genevieve Giuliano.

“The role of environment in physical activity: comparison of urban and suburban areas in Los Angeles County” was presented by Yongjin Ahn, an SPPD PhD candidate also advised by Dr. Giuliano.

METRANS EDUCATION
Students Organize Electric Bus Seminar

On April 6, METRANS presented “Electric Bus Transit: Has the Time Come?” It was the first time a METRANS seminar was conceived and organized by students. The project was led by Vidhu Shekhar, a USC Master of Public Administration student in Environmental Management and Land Use Policy.

The panel presentation featured bus manufacturer Proterra, Inc. and Foothill Transit. Foothill is the first agency to deploy Proterra’s all-electric “Ecoliner” (see photo), equipped with batteries that can be recharged to 95% capacity in only 10 minutes, so the vehicles can provide uninterrupted daily service without the need for overnight charges.

“There has been a lot in the media about electric cars and we were very interested in learning about the similarities and differences in the technology used in the electric bus,” says Shekhar, who is also employed at Foothill Transit. “Since the project was funded by the American Recovery and Reinvestment Act, we were also interested in learning more about the policy impact on the project.”

Three buses are already running between La Verne and Pomona, with nine more slated to go into service. These buses cover 526 square kilometers in the Pomona and San Gabriel valleys in Los Angeles County.

Speaking for Foothill Transit were Lauren Cochran, senior operations analyst, who leads the sustainability program and planning manager Dietter Aragon. Speaking on behalf of Proterra was director of business development Joshua Goldman.
METRANS Advisory Board Annual Meeting

METRANS held its annual Advisory Board Meeting April 19 at the California State University, Long Beach offices of the Center for International Trade and Transportation. Ten members of the Advisory Board and all the members of the METRANS Executive Committee were in attendance (see photo page 1).

The meeting noted accomplishments such as new faculty and students at USC and CSULB, PhD placements, and the recent announcement that METRANS had been recognized as Organization of the Year by the California Transportation Foundation (see front page).

Research briefings were offered by Drs. Maged Dessouky, Petros Ioannou, Tom O’Brien and Lisa Schweitzer. CSULB research assistant Mike Chavez and MAGL student Ebony Loeb reflected on how their experiences performing transportation related research have contributed to their academic and professional development. Other agenda items included Workforce Development (new and expanded degree programs, new programs and partnerships and a Workforce National Summit) and Outreach (conferences and communications).

The members of the Advisory Board are:

Dan Beal, Principal, Transportation Policy Consulting (Emeritus Member)
Michael Christensen, Deputy Executive Director, Development, Port of Los Angeles
Doug Failing, Executive Director, Highway Programs, Los Angeles County Metropolitan Transportation Authority
John Fenton, Chief Executive Officer, Metrolink, Southern California Regional Rail Authority
Stephen Finnegan, Manager, Government Affairs and Public Policy, Automobile Club of Southern California and AAA Hawaii
Anthony Furst, Director, Freight Management & Operations, FHWA
Hasan Ikhrata, Executive Director, Southern California Association of Governments
Fran Inman, Senior Vice President, Majestic Realty Co.
Randell Iwasaki, Executive Director, Contra Costa Transportation Authority
Gloria Jeff, Associate Director, Transportation Operations Administration, District Department of Transportation
Arthur Leahy, Chief Executive Officer, Los Angeles County Metropolitan Transportation Authority
Jack Levis, Director of Process Management, United Parcel Service
Domenick Miretti, ILWU Senior Liaison, Ports of Long Beach and Los Angeles
Larry Orcutt, Chief, Division of Research and Innovation, California Department of Transportation
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Richard Powers, Executive Director, Gateway Cities Council of Governments
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Barry Wallerstein, Executive Officer, South Coast Air Quality Management District

METRANS RESEARCH
Recently Completed Projects

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Senior Associate Dean, Research & Technology, School of Policy, Planning and Development, USC

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Petros Ioannou, Associate Director of Research
Professor, Electrical Engineering Systems, Director, Center for Advanced Transportation Technology, USC

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Maged Dessouky, Professor, Daniel J. Epstein Department of Industrial and Systems Engineering, USC

Kristen Monaco, Professor, Department of Economics, CSULB

James E. Moore II, Professor, Daniel J. Epstein Department of Industrial and Systems Engineering, USC

METRANS FACULTY

Since its inception, METRANS has funded 112 faculty at USC and CSULB. Given METRANS’ interdisciplinary theme, they are experts in engineering, business, economics, geography, information sciences, public policy, planning, public administration and health sciences.

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Robert Chi
Burkhard Englert
Mohammed Forouzesh
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METRANS Website

More information on transportation research, publications, education, training and technology transfer can be found at www.METRANS.org.
Dear Reader:

I am writing this message on graduation day at USC—a wonderful time to celebrate the accomplishments of our excellent students and faculty. Several of our transportation students are receiving awards, and most of them already have jobs! Graduation takes place at CSULB in a few weeks, and again we will see students receiving awards and honors.

In this issue you will read about some of our most recent student oriented innovations. We have joined with three other UTCs around the US to offer a joint graduate course in freight transport, using teleconferencing and webcasting to bring students together in real-time and taking advantage of the special expertise of each of the universities. We had our first student-organized seminar, and PhD dissertation research was featured at another.

Our biggest task over the next several months is our fourth National Urban Freight Conference. I hope you have all marked your calendars to attend. We are now in the process of fundraising to support the conference. The uncertainty of future federal funding requires us to move to a broader model for supporting METRANS activities. Please consider joining our growing list of conference sponsors. We are grateful for all the support!

Genevieve Giuliano
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METRANS Transportation Center

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