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## Miles to Go

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# Miles to GO

Story by Laurel Fruth  
Photography by Geri Kodey



Long commutes. Pedestrian safety. Traffic accidents. Seatbelt use. Pollution. The Southern Nevada roadways are filled with transportation research issues just waiting for the attention of Shashi Nambisan. But the director of UNLV's Transportation Research Center is ready to take on the challenges as he helps the community develop a strong ground transportation system.

**L**iving in Southern Nevada means learning to adapt to an ever-changing landscape. New housing tracts, schools, and shopping centers spring up seemingly overnight as the city races to stay ahead of the explosive population growth it has experienced in recent years.

And nowhere is that growth more evident than on the roadways.

Data from the Nevada Department of Motor Vehicles indicate that in 2005 there were approximately 675 vehicles for every 1,000 people in Clark County. With approximately 5,000 people per month moving to the area, the resulting addition of vehicles to Las Vegas roadways contributes to the city's dubious distinction as one of the top-20 most-congested urban areas. Additionally, a recent study published by the Texas Transportation Institute ranked Las Vegas as the 10th worst city for peak-period traffic congestion and the 39th worst in terms of annual hours of delay per traveler.

Civil and environmental engineering professor Shashi Nambisan empathizes with motorists who complain about long commutes and an overburdened transportation infrastructure. But as the director of UNLV's Transportation Research Center, Dr. Nambisan knows that a robust, efficient transportation system doesn't materialize overnight.

"It takes many, many years – perhaps 15 to 20 years – to develop a strong transportation system to meet the needs of a large metropolitan community that is facing the kind of growth Las Vegas is," Nambisan says. "Because Las Vegas is still growing, we can make changes now that will affect transportation outcomes in the future. And we're fortunate that those in charge of

developing and managing transportation systems for the state of Nevada have had the foresight to recognize the value of research conducted by the Transportation Research Center at UNLV."

Nambisan has been conducting transportation research and building partnerships with government planners and engineers in Nevada since he joined the UNLV faculty in 1989.

One of the founding members of the TRC, Nambisan has served as principal investigator or co-investigator on more than 130 sponsored projects, garnering nearly \$10 million in research funding for UNLV. He has authored 24 peer-reviewed articles and 55 conference publications, and he has made more than 145 professional presentations. Nambisan is also the recipient of numerous awards, including the UNLV Outstanding Faculty Member Award, the Nevada Regents' Graduate Academic Advisor Award, and the 2003 Institute of Transportation Engineers District Six Outstanding Educator Award.

In recognition of his prolific research record, Nambisan was awarded the prestigious Harry Reid Silver State Research Award in 2005. Additionally, his work with colleagues in the TRC was acknowledged later that year with the passage of a federal highway bill designating UNLV as a national University Transportation Center. The federal designation provides grant funding of \$500,000 per year over a four-year period to address surface transportation issues, including research, workforce development, and education. In addition, several local municipalities have joined with the Regional Transportation Commission of Southern Nevada to provide the required match of \$500,000 annually for this program.

Nambisan is pleased with the University Transportation Center designation because it provides long-term funding and





Nambisan guides engineering graduate student Ancilla Kaiparambil, who works as a research assistant at the TRC. “Our graduates often have multiple job offers from local and national organizations and compete successfully for scholarships and awards,” says Nambisan.

further strengthens UNLV’s national visibility and reputation.

“National attention is important because it demonstrates that UNLV is a strong competitor for federal funds,” says Nambisan, who earned a Ph.D. in civil engineering from the University of California, Berkeley. “The UTC designation will enable us to offer fellowships to attract top students to our program. In addition, the designation demonstrates that the work we do here at UNLV is valuable and significant. We credit our congressional delegation and Senator Harry Reid and his staff for calling attention to our efforts.”

The Transportation Research Center is currently working with the U.S. Department of Transportation and other partners in Nevada to implement projects through the new UTC. Nambisan says UNLV has created a sub-division for the newly recognized center within the TRC to address issues typically handled by university transportation centers. The four-year funding will provide long-term stability for the center and will allow for the formation of new partnerships within the state.

Nambisan cites a proposed joint project with UNR’s School of Medicine and the Lou Ruvo Brain Institute as an example of such partnerships; the project will address the transportation needs of those afflicted with dementia and other neurodegenerative diseases. According to Nambisan, this is a good example of the type of project that UNLV’s University Transportation Center should undertake.

“When the highway bill goes up for re-authorization in four years, we hope we will have demonstrated that we have been very good stewards of the resources provided and that we have used the resources in such a way as to merit renewal of the center,” Nambisan says.

In the meantime, the Transportation Research Center will continue to work on its many ongoing projects with federal, regional, and local partners as well. One such project is the pedestrian safety study sponsored by the Federal Highway Administration (FHWA). Las Vegas is one of three cities in the country selected by the FHWA as sites for the study of high-

risk pedestrian areas within urban boundaries and the effectiveness of specific countermeasures implemented to improve pedestrian safety. Results from the Las Vegas study will be compared to those in the cities of Miami and San Francisco to determine if safety strategies that work here also work in other urban settings. Findings of this research will ultimately be used in the selection, implementation, and evaluation of safety improvements across the country.

Improving safety is also the focus of a series of projects the TRC is undertaking with the Nevada Office of Traffic Safety. Nambisan says the goal of these projects is to enhance pedestrian, motor vehicle, and bicycle safety through community-based engineering, education, enforcement, and emergency medicine efforts. Examples of some of these projects include surveying the use of seatbelts, child-safety seats, and bicycle helmets throughout the state; analyzing statistics on traffic crashes involving pedestrians; and participating with more than 40 local agencies in a Safe Community Partnership Program to review safety data and identify the most pressing safety needs for Clark County.

The Regional Transportation Commission of Southern Nevada (RTC) has also developed a long-standing research partnership with Nambisan and his colleagues at the TRC. The projects for the RTC have addressed transportation planning and operational needs, as well as safety-related initiatives.

Additionally, the Clark County Department of Public Works has asked researchers in the TRC to help automate the management of public works projects. This involves developing ways that off-the-shelf technology such as PDAs and/or laptops can be used by technicians in the field to record work completed or document problems encountered on the roadways. One of the goals of the project is to help facilitate scheduling and prioritizing of public works maintenance projects.

Nambisan says he enjoys the applied nature of transportation research because it enables him to make a difference in a relatively short period of time. As an example, he describes a study on

bus turnouts that the TRC completed for the county in 1990.

“It used to be that when a bus stopped to pick up passengers, cars would line up behind the bus,” he says. “We did a simple, common-sense study that demonstrated that bus turnouts could reduce congestion on the streets and also improve air quality, and the county accepted the recommendations. Now every time a major arterial is built in the county, a bus turnout is also built at prospective bus stop locations close to intersections.”

Another of Nambisan’s major long-term projects involves the evaluation of the risks associated with the transport of radioactive material to Yucca Mountain. Since 1989, he has guided projects that have resulted in the development and deployment of Geographic Information Systems-based technology that assists state and local agencies in assessing risks related to the potential transport of nuclear waste through the state’s transportation infrastructure. This study dates back nearly to the creation of the TRC itself.

Nambisan explains that in 1988, UNLV established the Nuclear Waste Transportation Center under the stewardship of Dr. Bill Wells, then-dean of UNLV’s Howard R. Hughes College of Engineering. The center was to be funded through federal legislation that provided grants for work related to Yucca Mountain. The following year, UNLV hired Nambisan, along with two other faculty members, to initiate research programs at the Nuclear Waste Transportation Center (which eventually evolved into the TRC). They were also asked to build a curriculum in transportation-related civil engineering.

“Between the time I signed my contract and when I arrived at UNLV, several federal and state policy changes had occurred, however, resulting in a dramatic reduction in the funding level that was anticipated to support the center and the transportation engineering program,” Nambisan says. “So I

was told that I needed to find funding to sustain and grow the center and the program.”

And find funding he did, for that project and many others. Today, research funds obtained through the TRC support the work of more than 30 researchers, including 14 graduate students, five undergraduate students, five professional staff members, and nine faculty members.

Nambisan credits his colleagues in the Howard R. Hughes College of Engineering, including the faculty, professional staff, and students, for helping the TRC become the highly regarded research center it is today. He says he is most proud of the team effort that has evolved at the center and the accomplishments of the students he has worked with during the past 17 years.

“Our graduates often have multiple job offers from local and national organizations and compete successfully for scholarships and awards. I see this as one more indicator of the strength of our program,” he says.

Despite the successes of the TRC, Nambisan insists there is no time for resting on one’s laurels. The ongoing rapid growth of the community continues to provide ample opportunity for research and makes the Las Vegas metropolitan area an ideal spot to study transportation issues. As a researcher, Nambisan says, he appreciates the many and varied transportation challenges available for analysis in Southern Nevada. But he’s quick to add that he would happily divest the town of its rankings as one of the most congested urban areas of the country for a number of reasons.

“We are naturally committed to improving the transportation system of the area; that is our primary goal. But we also live and work in the community. We have to drive home everyday, too,” he says. “Not even transportation researchers enjoy a long commute.”

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