

CALIFORNIA STATE POLYTECHNIC UNIVERSITY POMONA

GROUNDBREAKING RESEARCH HAS NATIONAL IMPLICATIONS FOR PARKING POLICY

Professor Richard Willson in Cal Poly Pomona's Department of Urban and Regional Planning has done groundbreaking work on parking policy and its impact on land use, urban development, transportation, and climate change. Dr. Willson's research has culminated in two seminal books, "Parking Management for Smart Growth" and "Parking Reform Made Easy."

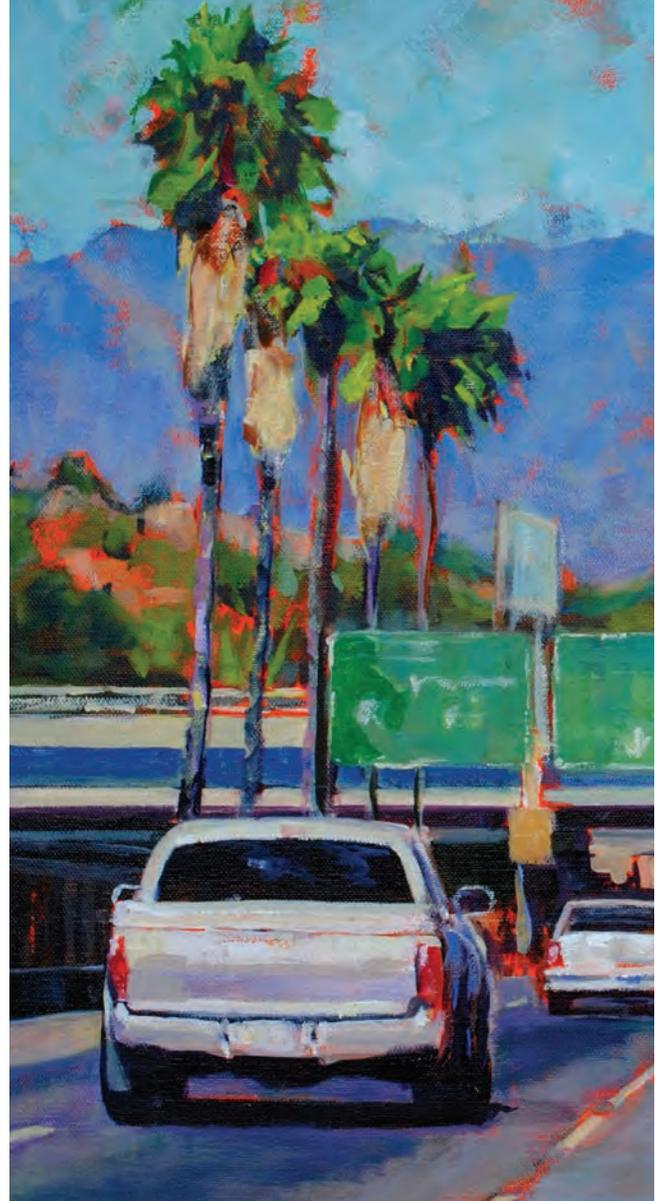
In the field of urban planning, Dr. Willson's work has provided a crucial link between transportation and land use, and his research may have far-reaching ramifications for parking policy.

Dr. Willson continues to conduct research in transportation policy, planning theory, and educational assessment. His work is funded by the U.S. Department of Transportation, the William & Barbara Leonard University Transportation Center at Cal State San Bernardino, and other granting agencies. He has served as a research associate with the Leonard Transportation Center and the Mineta Transportation Institute at San José State University.

"I have followed the work of Richard Willson for a decade and am aware of the influence it has had on scholars and practitioners of urban planning in Southern California and throughout the country," says Dr. Martin Wachs, distinguished professor emeritus of the UCLA Department of Urban Planning. "His work represents a critical link in urban planning between transportation and land use, which is one of the most complex, contentious, and politically charged topics addressed by planners."

EXPLORING WAYS TO STOP THE SPREAD OF MALARIA

Under the mentorship of Professor Peter Arensburger of Cal Poly Pomona's biological sciences department, undergraduate student Jenny McCarthy was part of an international team that sequenced and assembled the genomes of 16 species of mosquitoes, some of which transmit malaria to humans. It is estimated that in 2012, the disease sickened 200 million people and killed more than 600,000.



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Dr. Willson is a talented painter as well as a researcher, and his paintings often depict traffic and parking, the focus of his research.





TWEAKING SCIENCE TEACHING TO ENGAGE YOUNG STUDENTS

Cal Poly Pomona is involved in a number of teacher education initiatives, including Project Lead the Way (shown above), which is focused on K-12 engineering curriculum. Additionally, in 2014, the National Science Foundation awarded a five-year, \$7.7 million grant to Cal Poly Pomona's Center for Excellence in Mathematics and Science Teaching (CEMaST), to establish a new evidence-based program called Reinvigorating Elementary Science through a Partnership with California Teachers (RESPECT).

This professional development program is a partnership with Pomona Unified School District and Cal Poly Pomona for testing innovative education techniques in math and science. Led by Professor Nicole Wickler, 10 Cal Poly Pomona professors are undertaking research with 168 Pomona Unified K-6 teachers and 7,500 students to develop new science curricula that is more engaging and challenging.

The trained teachers will then serve as mentors to other teachers—an effort that ultimately will benefit all the K-6 teachers and students in the district. A major innovation in the project will be the development of video-based learning resources and shared curriculum materials that integrate selected Common Core State Standards from mathematics and English language arts.

Another key to the program is collecting classroom videotapes of teachers teaching as a base for reflection/modification of the lessons and to assess teacher change in practice over time. There is also careful assessment of student learning and teacher content knowledge for both experimental and control groups.

The new techniques from this research will be assessed to determine their impact on the achievement gap between groups of students as defined by socioeconomic status, race/ethnicity, and gender. The program is showing remarkable success thus far, as student and teacher enthusiasm for math and science is rapidly growing in the Pomona school district.

Dr. Arensburger runs a laboratory focusing on bio-informatic questions, such as the abundance and characteristics of transposable elements in invertebrates and the regulation of these elements by small ribonucleic acid (RNA) molecules. "There is a drive to try and modify these mosquitos artificially, that is, to try to genetically alter them so that they cannot carry diseases," says Dr. Arensburger.

Future analysis of the genomes may produce clues as to why some species are more likely to transmit malaria than others, which could lead to better health practices and even to genetic engineering to prevent mosquitoes from spreading the disease among humans.

With funding from multiple sources, this massive project involved 72 institutions worldwide. Each of the 16 species studied contained between 10,000 and 17,000 protein coding genes. Previously, the entire genome was available for only the most infective species of mosquito, *Anopheles gambiae*.