

TRIBUTE TO MARTIN WACHS UPON HIS RETIREMENT**Marty Wachs: The Teacher****by Elizabeth Deakin**

Martin Wachs was a consummate teacher. At UCLA, he won a distinguished teaching award and got rave reviews from his students. When he arrived at Berkeley in 1996, he immediately drew overflow enrollments in his classes on transportation policy, planning, and finance.

Marty's teaching style was the perfect mix of careful preparation and impromptu elaborations. He came to class with lecture notes, transparencies, handouts, chalk, newspaper clippings, and the occasional PowerPoint presentation — a one-man multimedia show. He liked to lecture but didn't mind questions in the middle of the talk. He'd weave his response right back into his discourse.

No one could doubt Marty's love for the subject matter. His voice would rise with excitement as he made a particularly telling observation. He would rise up on his toes when he made his points. His excitement was infectious — his students loved his classes and were hooked for life on transportation policy.

Marty wanted his students to be prudent consumers of the transportation literature and he taught them how to evaluate what they read. He'd often start out by asking them to think about their own values and experiences in a critical way.

"How many of you think that transit will be a central transportation mode in the future?" (Many hands go up.)

"How many of you use transit yourselves?" (Many hands again, this being Berkeley.)

"And how many of you have parents who commute to work by transit?" (Few hands this time.)

"For those of you whose parents don't use transit, how many of you think they could be persuaded to do so in the future?" (Mostly sheepish glances around the classroom.)

Marty then would lead the students through an analysis of why transit might work for them in Berkeley, but not work at all for their parents, mostly in the suburbs. The vivid discussion, full of concrete examples,

pumped life into the lesson on travel behavior research findings — how value of time depends on income and trip purpose, how consumers make time and cost trade-offs, the barriers operators face when asked to offer transit service in sprawling suburbs, and so on.

Marty's interest in equity came through loud and clear in his teaching. Like much of his research, the lectures he gave and the discussions he led often focused on the transportation needs of the elderly, the disabled, and the poor. When he taught about finance issues, the analysis was permeated with a concern for how funding mechanisms and expenditure decisions affect the well-being of the least well off. He expected his students to consider the ethics and the fairness of the policies they analyzed and the proposals they put forth, and by his own example, he showed them how to do it.

His grading, like his teaching, was thoughtful and instructive. A splendid writer himself, he often edited a page or two for a student whose prose was soggy. Papers graded by Marty were handed back with the margins filled with questions and compliments and a closing paragraph suggesting ways to improve the analysis or extend it farther.

I had the experience of teaching the Transportation Policy class with Marty one Fall shortly before his retirement. About half of the students were engineering majors, many of them new to the U.S. Few had much experience in writing papers. They were used to calculations whose results could be checked, not arguments whose contours were indeterminate. They were quiet in class and, when asked what they thought about a particular article we'd read, unsure about voicing an opinion. So Marty decided that we should stage some debates, each of us showcasing the positions taken by key stakeholders on policy issues like road pricing and auto restraints and showing how policy arguments are put forward and defended. At first, some of the students were uneasy. One said to me, "How can the students know the right answer if even the professors disagree?"

By the end of the semester, though, the students were all jumping into the discussions with energy and conviction. The same student who had questioned our debates had figured out their purpose, telling me, "You want us to be critical and to question what we read. You trust us to be reviewers of papers, not just consumers."

Marty's teaching was not confined to the classroom. Indeed, the door to his office was nearly always open to students, who would drop in to ask him to elaborate on a point he had made or to bounce their own research ideas around with him. Students were a priority for Marty. He

was famous for telling a senator's office that he would call back because he was meeting with a student just then.

His "retirement" to RAND has not ended his Berkeley teaching — he continues to supervise dissertations and to advise graduate students who consider him their mentor. And surely the RAND staff members are also enjoying the benefits of Martin Wachs's extraordinary gift for teaching.

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TRIBUTETO MARTIN WACHS UPON HIS RETIREMENT

Marty Wachs: The Scholar

by Robert Cervero

While I could easily praise Marty for his outstanding contributions in many realms, I'm going to focus my remarks on a few seminal articles, ones from earlier years of his academic career — and ones that had a particularly profound effect on my own views about transportation planning. I first came across the writings of Marty Wachs while a freshly minted MCP graduate heading the transportation planning department in Billings, Montana. After months of butting heads with state highway officials whose chief concern was to lay asphalt as quickly as possible, I realized I needed to adopt a more holistic, "big-picture" perspective of the field. Doctoral studies seemed a natural trajectory. In the pre-Internet era, deciding where to pursue a Ph.D. in planning, especially in a remote burg like Billings, wasn't easy. While thumbing through back issues of *Traffic Quarterly*, the only transportation journal available in my office, one piece caught my eye: "Abstract Values and Concrete Highways," penned by Marty and his friend from college years, Joseph Schofer. This pithy essay offered a new and refreshing perspective about the role of transportation in society, addressing issues like social equity, environmental quality, and community values that were rarely mentioned in the transportation literature. This one piece led me to read more of Marty's work, prompting me to apply to UCLA's doctoral program and spend three wonderful years under Marty's tutelage.

While studying at UCLA, another eye-opening article by Marty that I came across was "Physical Accessibility as a Social Indicator," co-authored with a UCLA master's student, Thomas Kumagai, in a 1973 issue of *Socio-Economic Planning Science*. This pioneering piece advanced both the theory and method of that all-important transportation principle, "accessibility." Using clever mathematics and compelling logic, Wachs and Kumagai provided a normative framework for thinking about and measuring accessibility, planting the seeds for numerous policy studies on spatial mismatch, jobs-housing balance, and welfare-to-work that followed. One might live in an area interspersed by roads and close to well-paying jobs; however, if one does not own a car or qualify for the jobs, he or she is hardly accessible. By casting accessibility in such qualitative terms, Wachs and Kumagai revealed the important policy levers necessary for enhancing access to jobs, commercial centers, medical services, and other key urban destinations.

Marty's systemic understanding of the transportation field is no better displayed than in "Transportation Policy in the Eighties," published in a 1977 issue of the journal *Transportation*. This eloquent piece foretold the future of ever-worsening traffic congestion in American cities due in large part to the "tragedy of the commons." Borrowing from Garret Hardin's writings on how agrarian-based towns of medieval Europe disappeared from overgrazing of "commons" areas, Marty analogized that American cities were poised for serious air quality and traffic problems because underpricing of car use results in overconsumption of highways. Marty argued that congestion charges and road-tolling, ideas very much in vogue today, were the best ways of getting motorists to internalize the external costs they impose. I continued to use this cogent and lively piece in my course reader well into the 1990s despite its focus on "future" transportation issues in the 1980s.

One other earlier piece that seeded Marty's research on transportation finance over the past two decades and steered me to my own dissertation work was "The Cost-Revenue Squeeze in American Public Transit," co-written with his doctoral student, James Ortner, and published in a 1979 issue of the *Journal of the American Planning Association*. Ortner and Wachs trace the cumulative effects of suburbanization, wage concessions to labor interests, low and flat fares, over-capitalization, and public monopoly status on the transit industry's steadily deteriorating fiscal health. They forewarn that unless major policy reforms are introduced — both within and outside America's public transit industry — transit's downward spiral would only hasten. This and other writings of the time helped make the case for such initiatives of the 1980s as competitive tendering of bus operations, peak-period surcharges, and transit-friendly suburban designs. In my own case, it opened the door for my dissertation on transit fare policy, which I was delighted to have turned into a co-authored article with my mentor and advisor: "An Answer to the Transit Crisis: The Case for Distance-Based Fares" (*Journal of Contemporary Studies*, 1982).

Others no doubt would come up with a different list of writings by Marty that strongly influenced their thinking. And I could cite many other seminal contributions of Marty's in the areas of mobility planning for the elderly, the political economy in urban transportation, ethics in forecasting, and highway finance. For me, however, these four delightful pieces indelibly shaped my views of the field and research interests.

I have had the privilege of being around Marty as a student and colleague over the past 30 years. It is an unspoken truth by those in the transportation planning academy that Marty is the gold standard on how to be a Professor — sharp, decisive and demanding, yet warm, caring and approachable. His profound and lasting influence on the field and today's generation of transportation professionals and scholars is unparalleled.

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TRIBUTE TO MARTIN WACHS UPON HIS RETIREMENT**The Impact of Martin Wachs' Work on Transportation Policy****by Lewison Lem**

The work of Professor Martin Wachs' career has made broad and deep impacts upon the transportation planning field. While his contributions to research and teaching are widely recognized, his contributions to transportation policy are likewise worthy of highlight and review.

In the university setting, service is the third leg of the stool of a professor's contribution. In Marty's case, his public and community service has sustained itself over the three decades of his tenure at the University of California, and his impacts on transportation planning and policy will reverberate for many more decades through his students, his writings, and his legacy in other forms.

Professor Wachs' policy-related work in the 1970s and 1980s at UCLA established him as a national leader in the transportation planning and policy professional field. As one example of this leadership, Professor Wachs collaborated with Professor Genevieve Giuliano of the University of Southern California and conducted groundbreaking evaluations of "Regulation XV." The South Coast Air Quality Management District instituted Regulation XV, which called for mandatory employer-based transportation demand management (TDM) programs.

As with all of his policy-oriented work, Professor Wachs was not governed by ideology or preconceived notions about what the conclusions of research should be. The groundbreaking TDM work on the Regulation XV measures found that employer-based demand management was both effective and costly. As is usual with good policy analysis work, the political advocates and opponents both found something in Marty's work that they liked. The advocates cited his work because it showed that TDM programs could be effective, while the opponents questioned the cost-effectiveness of the programs, based upon the conclusions of Wachs and Giuliano.

While always gracious in person and diplomatic in meetings, Professor Wachs was not averse to going against the political wisdom of the moment. When millions of dollars in funding were being directed to develop plans for a county-wide system of rail transit in Los Angeles, Marty was one of the few consistent voices raising questions about the wisdom of this spending and the opportunity cost of not using these resources for bus

transit, which he and others had shown to be both more effective and more cost-effective in the Southern California environment.

During the early 1990s, Professor Wachs' critiques of the expensive Los Angeles rail transit plans seemed like the metaphorical "voice in the wilderness" while so many public officials trumpeted the expected benefits of the ambitious system. Marty's conclusions about the cost-ineffectiveness of rail systems amidst Los Angeles' dispersed settlement patterns soon became an important force in the David-and-Goliath struggle between the advocates of transit equity and the board of directors of the richest transportation planning agency in the country. When any decent betting line in Las Vegas would have given million-to-one odds against the lawsuit by public-interest legal advocates, he worked carefully to ensure that the best research-based information was available to inform the debate. The consent decree that arose from the lawsuit moved transportation planning in Los Angeles County largely in the direction that the transit equity advocates were calling for.

The judicial system recognized the important contribution that Professor Wachs could continue to make when the special master overseeing the implementation of the consent decree asked Marty to advise him on the merits of the evidence and arguments that were being presented by the bus riders' union in the ongoing legal battles. At the end of the day, the political system also recognized the value of Professor Wachs' work when a new mayor appointed a new board of directors to the Los Angeles Metropolitan Transportation Agency. The new board and the new executive director implemented a landmark program to purchase additional buses and provide additional bus service to reduce overcrowding and improve travel times.

Professor Wachs' professional work has extended over many years through committees and collegiality in association with the Transportation Research Board (TRB), a division of the National Academy of Sciences. In the last decade, Marty has both chaired the Executive Committee of the TRB and also chaired several committees to produce important policy-oriented TRB Special Reports. One important example of these special reports was produced by the committee that conducted an evaluation of the efficacy of the U.S. Department of Transportation's Congestion Management and Air Quality (CMAQ) program.

The CMAQ program is a landmark federal program that, for the first time, dedicated transportation funding to programs and projects that had the goal of improving air quality in those areas of the country where public health was threatened by air pollution from automobiles and other mobile sources. For over a decade, members of Congress had debated whether the CMAQ program should be ended, extended, or expanded.

Struggling with a deadlock at the legislative level, Congress eventually mandated that an independent expert committee convened by the TRB assess the program.

The TRB report from the committee chaired by Professor Wachs looked carefully at the CMAQ program and examined the effectiveness of individual projects and programs that ranged from traffic signal improvements to bicycle lanes and engine retrofits. The TRB report found that, while many individual projects were effective in improving the transportation system while improving air quality, the overall CMAQ program was so broad and diverse that no clear conclusions could be scientifically drawn about the overall efficacy of the program. As a result, Marty's stewardship on the TRB committee successfully steered the work between the shoals of too much political interference and the rocks of policy irrelevance. The CMAQ program was reauthorized by Congress with some improvements.

In more recent years, Marty has been one of the most consistent public voices for strengthening the role of user fees in the financing and improvement of the transportation system. Informing the debates on federal transportation legislation and discussions of alternatives for financing transportation improvements at the state level, Professor Wachs' "Ten Reasons to Raise the Gasoline Tax" is perhaps the most clear and concise set of arguments made to policy makers about the need to rebuild the deteriorating system of pay-as-you-go fuel taxes. Marty's reasoning is consistently based upon good principles, such as linking the financing of the transportation system to the direct beneficiaries of the system.

As many students of Professor Martin Wachs will recall from their classroom experience with him, his advocacy of transportation user fees and other transportation planning ideas were examples of how he consistently worked to balance effectiveness with fairness. Perhaps this idea of balancing effectiveness with fairness is one of Martin Wachs' most important legacies in the field of transportation planning and policy.

Lewison Lem (PhD, UCLA, 1996) has been a visiting scholar at the University of California Transportation Center from 2006-2007. His consulting work currently focuses on transportation, energy, and climate change issues, primarily through the Center for Climate Strategies. He has held several transportation policy positions at the AAA of Northern California, Nevada, and Utah, the United States Environmental Protection Agency (USEPA) Office of Policy, and the United States Government Accountability Office. (USGAO).