This Practitioner Teaches, Too

By Ruth Eckdish Knack, AICP

It's a crisp February afternoon in College Park, Maryland, but the wind doesn't bother Reid Ewing as he points out what's wrong with the traffic signals on busy U.S. 1. It turns out that Ewing, known for his work on traffic calming and street design, has broader interests, informed by his long career as a transportation planning consultant, writer, and teacher.

On this day, he's focusing on timing signals to get cars on their way. "The intersections are just 150 feet apart, but none of the signals are coordinated," he says. He is part of an EPA team providing advice to the city of College Park.

Ewing, 58, has a split appointment at the University of Maryland; he divides his time between the National Center for Smart Growth, Research, and Education, where he studies transportation and land use, and the Urban Studies and Planning Program, just across the parking lot, where he teaches one course a semester.

His bibliography includes two books published by APA (*Transportation and Land Use Innovations* and *Best Development Practices*) and others by the Urban Land Institute (*Developing Successful New Communities*) and the Institute of Transportation Engineers (*Traffic Calming State-of-the-Practice*). Recently, he's been working on a series of articles on the connection between sprawl and public health. He's also the guest editor of the summer 2006 issue of the *Journal of the American Planning Association*, a special issue on transportation.

Q. You're known for pedestrian advocacy. So why this interest in traffic signals?

A. It's part of a broader involvement in traffic

Ellen Temes, University of Maryland Marketing and Communications

Reid Ewing

Why We Should Care About Traffic

Moving traffic efficiently is something transportation planners should know and care about, because our "customers" (the traveling public) find traffic so frustrating and because competent traffic engineers aren't always around.

My wife works with a couple of local governments in South Florida. One, Coral Springs, polled its residents last year and found that traffic was their number one concern. It came in second in a Miami Beach survey. People everywhere grouse about traffic, but residents of South Florida may have more reason to complain.

Every week, I get to compare traffic management in two states: Florida, where I live, and Maryland, where I work. Both states have a lot of sprawl and a lot of congestion. But traffic management seems less of a problem in Maryland than in Florida.

The Southeast Florida Intelligent Corridor project (renamed SMART SunGuide in Broward County) was initiated in 1992 to ease congestion on Interstate 95 between Miami and Palm Beach County.

It called for installing surveillance cameras to monitor incidents, adding electronic advisory signs and radio announcements to reroute traffic to surface streets, and reprogramming the counties' central computers to accommodate the extra traffic along detour routes. Ramp meters (traffic signals that control the rate of entering vehicles) were to be installed on all entrance ramps along I-95 through Miami.

The project was to have been completed by 1998. But today, I-95 still has no ramp meters. The central computers aren't programmed for detours following accidents. There is no coordination with Florida's Turnpike, which could handle some of the detoured traffic. And the three transportation management centers (Miami–Dade, Broward, and Palm Beach counties) operate as independent agencies rather than a regionally coordinated whole. Only in the last three years has Broward County gotten its first dynamic message signs, closed-circuit television cameras, and vehicle detectors.

This is a trend in the right direction, with more capable staff, system capacity, and regional coordination every year. But transportation system intelligence has been slow to develop.

It's the signals, stupid

The big frustration in South Florida is the surface street system, where traffic signals have never functioned efficiently. In *Transportation and Land Use Innovations*, the book I wrote for the state of Florida and which was published by APA in 1997, I applauded the tests of traffic-responsive signal systems on Florida's west coast and of adaptive traffic control in Broward County.

Traffic-responsive systems monitor traffic at key intersections in real time and select the most appropriate signal timing plan. Adaptive traffic control, which is standard in Britain and Australia, permits signal cycle length, splits, and offsets to vary in response to current traffic conditions.

Traffic-responsive operation has never come to South Florida, and Broward County's test of adaptive traffic control was discontinued despite a 15 percent saving in travel time over the current standard. Perhaps it is unrealistic to expect state-of-the-art signal timing in South Florida, but I would have expected more effective use of signal control technology that has been around for three decades.

Let's get specific. I live at the eastern end of Sample Road, a major east-west arterial that links my community of Lighthouse Point to I-95, the turnpike, and points west. All my vehicle trips require the use of Sample Road. My wife, kids, and I spend a good part of our lives on this road waiting for traffic signals to change.

Transportation planner Reid Ewing is doing what he can to close the gap between academe and practice.

management, which has dropped off the radar screen for most planners. We're interested in pedestrians, bicyclists, and transit, virtually everything except moving cars efficiently—which we leave to the traffic engineers.

That's a mistake when car trips account for 90 percent of all travel. They deserve more of our attention. Signal systems get more sophisticated every year, but you'd be hard-pressed to find anything in a planning journal on that subject.

Q. What does the center do?

A. We do research mostly, and some smart growth training. We did more training under the nation's first "smart growth" governor, Parris Glendening, but the current administration is not particularly supportive of smart growth.

Q. Did you start out as a planner?

A. No, as an engineer. I have an undergraduate degree from Purdue University in mechanical engineering. Then Harvard offered me a very nice fellowship in engineering and applied physics. It was a more theoretical engineering program than most. I did well and got my master's degree, but I was bored. So after my last exam in May 1971, I crossed the campus and enrolled in the two-year program in planning in the Graduate School of Design.

Even though I was a total technocrat, I found that program just perfect for me. It was a wonderful introduction to the field. This was a time when social scientists were taking over planning programs all over the country. I sided with the physical planners. But soon after, the planning program went to the Kennedy School of Government.

Q. Was the GSD where you were introduced to transportation planning?

A. Yes, I took a couple of courses. I have always thought of myself as an urban planner rather than a transportation engineer, although almost all my consulting is in transportation. Actually, the two go together.

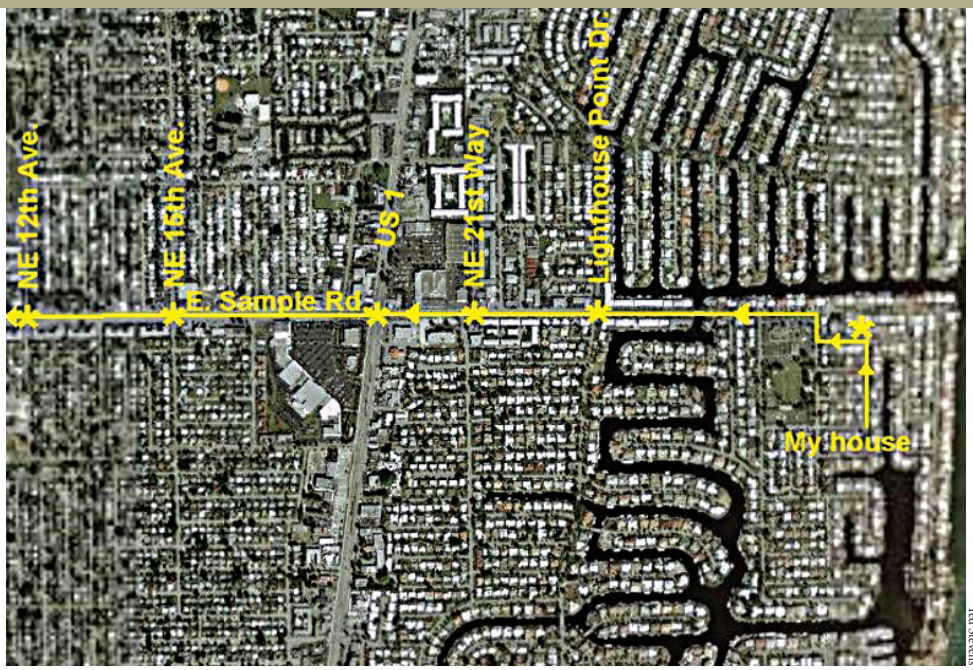
Q. What happened after Harvard?

A. I went into the Peace Corps in Iran and then to the United Nations Development Program in Iran, and then on to Ghana, where I taught. When I came back, I enrolled in the Massachusetts Institute of Technology for an interdisciplinary PhD, combining urban planning and civil engineering.

My dissertation was on "Dial-a-Ride," which I reflected on in a *Planning* article on transporta-

A gut response from a seasoned transportation planner.

By Reid Ewing



Ted Sievers

The route from the author's house to Florida's Turnpike and points west. "My wife, kids, and I spend a good part of our lives on Sample Road waiting for traffic signals to change," he writes.

Readers will recognize many of the problems I describe from their own experience at signalized intersections in their communities.

The spacing of the Sample Road traffic signals is part of the problem. Even if all the lights were coordinated, the irregular and close spacing would prevent traffic from progressing in both directions at the same time. Still, it would be nice to have progression in the peak direction at least some of the time.

Another problem is the priority (green time) given to Sample Road relative to its cross streets. Sample is an important link in the regional road network, while only two of the cross streets in this area (U.S. 1 and Dixie Highway) carry much traffic.

Sample gets more green time than the cross streets, but not enough more. The software used to develop timing plans in Broward County minimizes delay (including cross street delay), rather than maximizing progression on the main roads. While many drivers (including me) like to use the cross streets as short cuts, Sample deserves better. Maryland shows far more deference to principal arterials.

The long wait

The first signalized intersection I encounter after leaving our island subdivision is at Lighthouse Point Drive. It is a minor intersection, with low traffic volume because Sample Road doesn't extend very far east. Its signal is pre-timed, meaning that the cycle length, phases, green time, and change intervals are all preset.

There is no vehicle actuation at any of the approaches (that is, no detection of vehicles to

tion in the new millennium. Dial-a-Ride was supposed to have the cost characteristics of a bus and the performance of a taxi. It turned out to be just the reverse, and it wasn't much of a springboard for an academic research career.

Q. You also had a political interlude, didn't you?

A. Yes, when I was still at MIT, I decided I wanted to go into politics—why, I can't recall. But first I needed some political education, so I went to Washington to work in the Congressional Budget Office and later became staff director of a House small business subcommittee. I stayed through the Reagan landslide, when I decided it was a good time to get out of town.

That's when I was offered a job at the University of Arizona in Tucson and eventually won a seat in the state legislature. I came out of a Common Cause, environmentalist tradition, which put me at odds with my colleagues on both sides of the aisle. I was reelected but lost my next race, for the state senate, in part because my opponent was a very well-funded incumbent. It didn't help to be a Democrat in a Republican district in 1988, the year George H.W. Bush won the White House.

I moved to Florida after the election because it was such an exciting place to be a planner. The state's growth management program was well under way at that time. I started consulting and wrote my first book, on successful new communities. I jumped at the chance to go to the FAU-FIU Joint Center for Urban and Environmental Problems, to work with John DeGrove, who really is the father of growth management. *Best Development Practices*, the book APA published in 1996, featured six Florida developments.

Q. You were the director of the Voorhees Transportation Center at Rutgers. We were sorry to hear of the death earlier this year of Alan Voorhees, FAICP. Did you know him?

A. Yes, he was a friend. I moved to Rutgers in 1999 to work with Bob Burchell and David Listokin at the Center for Urban Policy Research. Two years later, I became the director of the Voorhees Center, which was endowed by Alan and his brother Ralph. Alan was an extremely intellectual engineer and planner. And he founded the most successful transportation consulting firm in the country. It developed methodologies that MPOs to some degree still use today for long-range planning.

I was with the center for three years. During that time I shifted from being practice-oriented to becoming more academically oriented. While I was there, I also got involved with the movement linking planning and public health. In 2000, the Robert Wood Johnson Foundation had a little gathering at their headquarters in Princeton, where they brought together planners and public health experts, including Jim Sallis at San Diego State University, who heads the Active Living Research program for the foundation. We sat around the table discussing our interests and how they overlapped, and how we might collaborate to create a new field.

initiate phase changes). Day or night, whether there is traffic or not, the cycle is the same 65 seconds, and the green interval on Sample is a constant 35 seconds. Even late at night, when there is no traffic, residents sit at this signal through its fixed phases.

By my rough count, Sample Road at this location carries less than 600 cars per hour during the afternoon peak hour, and Lighthouse Point Drive carries under 400. I would guess that the eight-hour average hourly volumes are about half those numbers.

At these volumes, a traffic signal isn't warranted. The intersection would function better, and delay would be reduced, with stop signs. And, space permitting, it would function better still with a roundabout. If, for some reason, the city or county is stuck on the idea of a traffic signal at this location, the signal could be reprogrammed to have flashing yellow or red lights at off-peak hours. In fact, such a change was requested by the city of Lighthouse Point at one point. It was rejected for debatable reasons.

The next intersection to the west is an offset intersection at N.E. 21st Way and N.E. 21st Avenue. These cross streets are vehicle-actuated, giving Sample Road drivers a continuous green light when there is no cross street traffic. The vehicle detectors—magnet loops embedded in the pavement—almost always work.

This intersection works well at off hours, but not at peak hours. The minimum green time for Sample Road is only 10 to 15 seconds. When a car pulls up on either cross street, the phase instantly changes and Sample Road traffic is stopped in its tracks. The signal often turns red just as the signal on U.S. 1 turns green, leaving drivers to sit through cycles at both intersections. If the signals were coordinated and cycle lengths were multiples of each other, this wouldn't happen.

The U.S. 1 intersection gets heavy traffic and appropriately gives priority to the higher traffic volumes on the busy north-south road. I recognize that delays on Sample Road are unavoidable, but they are exacerbated by the operation and timing of the signals.

Left turns off U.S. 1 and east and westbound traffic are supposedly vehicle-actuated. But they don't always function that way. The p.m. peak cycle is about 160 seconds, which appears right for the traffic volume, but why a 110 second cycle at 11 p.m. on a Sunday night? Queued traffic clears quickly and much of the green time is wasted, with only an occasional car passing through the intersection.

What's wrong with this signal and others to the west, which are also supposed to be vehicle-actuated? The explanation I was given is that loop detectors often fail on their own or as a result of construction activity. County maintenance crews say they can't keep up with repair orders. I was assured that this problem will be solved when all the loops are replaced by more reliable video detection technology.

During the day, the signals at N.E. 15th and N.E. 12th avenues are nominally coordinated with each other and with the signal at U.S. 1. All are under central computer control. They should have the same cycle length and coordinated green intervals in the peak direction.

From direct observation, I know that they don't. They don't even have the same cycle lengths. I got two possible explanations when I asked abut this anomaly: One—I kid you not—is that the county forgot to retime the signals on Sample Road to coordinate with the signals on U.S. 1 when that road was reconstructed a year or two ago.

The second possible explanation is that whenever one of the cables to the central computer is cut because of construction activity, or a power surge, or some other reason, the signals revert to isolated operation. A county engineer told me that in 11 years, there has never been a time when all signals worked properly. Supposedly, this won't

One of the things that came out of that meeting and subsequent ones was the need for scientific evidence to prove that the way we build our communities contributes to inactivity and the rise in obesity. I had already developed a sprawl index for other research purposes, and we were able to use that to link sprawl quantitatively to body mass index and chronic health conditions like hypertension.

My public health colleagues and I wrote up the results in an article that appeared in 2003 in the *American Journal of Health Promotion.* There was an amazing flood of publicity on this study. It was the first, and that counts for a lot. It was followed by other articles, pro and con. Subsequent research on the subject has been more sophisticated. But for the most part, our conclusions have held up.

Since then, I've taken part in several planning and health studies, including a study of obesity in kids, and public health remains way up there on my list of interests. My current research is on how we can change public policy to make communities more walkable, using the burgeoning field of traffic calming as a case study.

I got some insights into that recently from a book called *The Tipping Point*. The author, Malcolm Gladwell, makes the point that you only need a handful of people to change the world if they have the knowledge and connections, a "sticky" message, and the right political context. We in the smart growth business are getting there.

Q. You said you would be doing something different next year.

A. Yes, I'm going back to practice. I'll be spending the year in Los Angeles with my 17-year-old son, who is pursuing an acting career. I've lined up a job with Fehr & Peers, a leading West Coast transportation engineering and planning firm, and I'll be doing some teaching. I'll actually be working on land development projects again, something I've written about more than done in recent years.

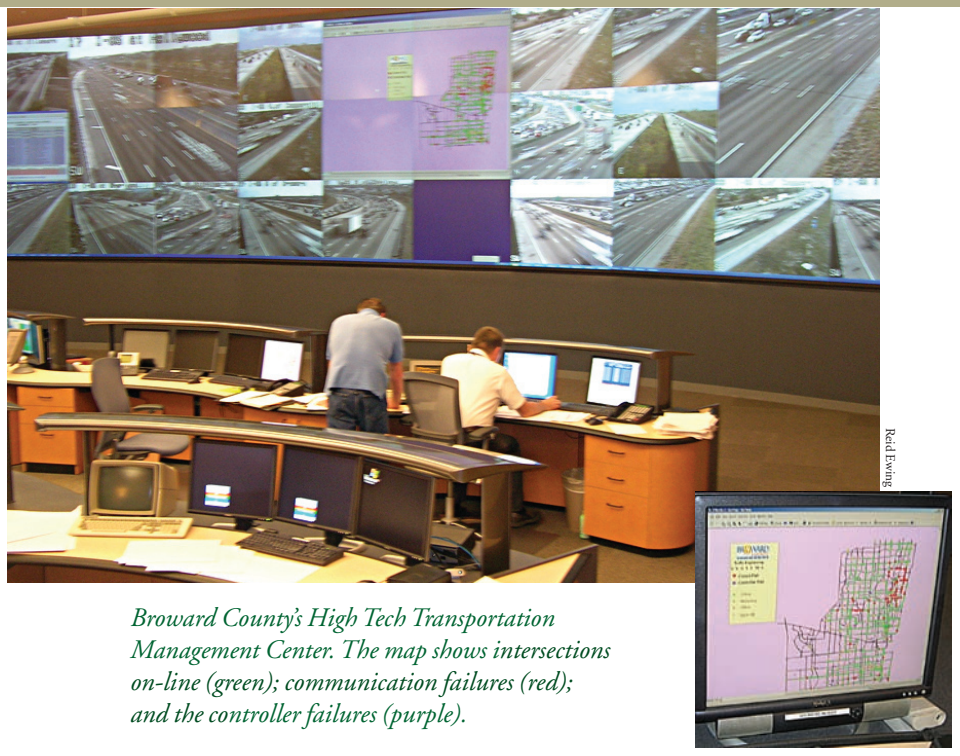
Meanwhile, I'm working on other projects, including a model infill zoning ordinance for the state of New Jersey, street design guidelines for ITE and the Congress for the New Urbanism, a plan for the redevelopment of downtown Columbia, Maryland, and studies of the built environment-health connection with the Harvard and St. Louis schools of public health.

Q. So you really are building that bridge between research and practice.

A. I think that's an important thing for academics to do. There is a disconnect now. Who is researching how to do land development right? How to build great streets? Or small things like how to design pedestrian crosswalks for maximum safety? Generally, those aren't subjects of interest to planning academics.

We are a field that is lucky enough to have practitioners. The vast majority of planning students end up as practitioners. Are we teaching them what they need to know and then providing them with useful research once they're out in the world of practice?

Ruth Knack is the executive editor of *Planning*.



Reid Ewing

Broward County's High Tech Transportation Management Center. The map shows intersections on-line (green); communication failures (red); and the controller failures (purple).

happen when today's copper cables are replaced by fiber optic cables.

The signal at N.E. 12th Avenue is particularly irritating. Each cycle includes a protected left-turn phase, whether anyone wants to turn or not. By my count, only about six vehicles turn left per cycle during peak hours and almost no one does so in off hours.

Florida has a penchant for protected left turns, and some might argue that green arrows are warranted at this intersection (if nothing else, to protect all those snow birds having trouble judging gaps in traffic). But the intersection at N.E. 15th Avenue has as many or more turning vehicles, and it functions fine with permitted left turns.

Good intentions

The county and state traffic engineers I talked to about these issues seemed technically competent and well-intentioned. When asked about the poor quality of traffic flow, or about the slow progress in improving it, they cited a variety of improvements that were on the way: new state-of-the-art transportation management centers, fiber optic cable for more reliable communication, high-tech vehicle detection technology, and replacement of 20-year-old UTCS (urban traffic control system) software for centralized signal control. All of them predicted better times ahead.

I want to believe them, but 12 years of driving on these roads has made me a skeptic. The fact is that traffic has been at its best immediately after our increasingly frequent hurricanes, when traffic signals are knocked out and people stay home. I hate to say it, but global warming may be the best hope for traffic in South Florida.