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Where's the Tech Lobby?

You'd think that the technology sector would push for creative ways to address Virginia's transportation "crisis". Despite having much to gain, the techies are contributing little to the debate.

By James A. Bacon

Where has the technology sector stood in the transportation debate?

It's a legitimate question. Virginia's tech lobby led the push for reforming state IT services, and rightfully so. Streamlining the state bureaucracy delivers a double bang for the buck: more business for tech companies and more efficient government for everyone. I'm wondering why the same logic doesn't apply to transportation as well.

Why aren't Virginia's technology mavens articulating a vision for weaning Virginia's transportation system from Old Economy solutions, like spending billions on more highways and METRO stations, in favor of New Economy ideas like telework, intelligent transportation systems, and traffic/land use modeling?

Virginia state government, including public universities, spend roughly $1 billion a year on IT. The Virginia Department of Highways and Transportation spends about $2.8 billion a year on transportation -- and that number doesn't include allocations to rail, ports and aviation. Carving $100 million or more from all that money devoted to dump trucks, backhoes, cement, gravel and steel would represent a big boost to Virginia's tech sector, I would think. As a bonus, if tech companies could demonstrate the effectiveness of technology solutions in mitigating congestion, they could develop national and global markets potentially worth *billions* of dollars.

But that's not all. By doing a better job of ameliorating traffic congestion than the past decades of taxing, spending and building has done, aggressive implementation of IT solutions could well head off another round of tax increases. Virginia's state Senate leadership hasn't said how much money it wants to raise but, given the massive projections of "unfunded needs" under the Old Economy transportation paradigm, the number could be in excess of $1 billion or more per year. However the numbers are sliced, a disproportionate share of those taxes inevitably would be paid by Virginia's technology sector—the Northern Virginia tech sector, I particular—which is the fastest-growing segment of the state economy.

Remarkably, the Northern Virginia Technology Council has shown little interest in technology solutions to transportation problems. On its website, the NVTC does list telework as one strategy for dealing with traffic congestion. Areas for "study" include "exploration" of the idea, "educating" NVTC members about the benefits of telework and developing legislative positions that would reduce legal and financial obstacles. (See the NVTC's telecommuting task force page.)

But that formulation is as lukewarm as baby formula. Notice the passive nature of the words. Compare the tentative exploration of telework to the Council's "strong support" for construction of the Techway, a limited access road that would connect Maryland and Virginia.

That's the impression I got from reviewing the NVTC website. For another take, I contacted my friend and fellow *Bacon's Rebellion* columnist Doug Koelemay. I knew that he, as the NVTC's lobbyist in Richmond, would give the straight skinny.

"The technology community sees transportation as part of the quality-of-life argument," Doug responded to my questions. "Keep Virginia the most attractive place to start, grow or move a business. Therefore, remove barriers to efficiency and happiness such as traffic congestion."

So far, so good.

"The preferred solution," Doug continued, "is to give people more choices so they have the flexibility to move according to a set of schedules and other needs that constantly shift. Remember, these are not jobs that begin and end predictably at a single time or place like a factory

shift." The packet switching that marks the transmission of data over the Internet, he added, bears interesting parallels to transportation. "Packet switching ... splits the data into as many small pieces as necessary to efficiently move them according to where capacity (choices) exist. Each piece carries its own routing instructions. For transportation purposes, isn't that a description of the automobile moving over a robust road network?"

Again, I'm in total agreement. Although I didn't think of the nifty Internet metaphor, I made a very similar argument in my column, "Car(pool) Crash" (Nov. 4, 2002).

The tech community is neither pro-tax nor anti-tax, Doug continued, just "pragmatic in removing the barrier to an improving quality of life."

Now, here's where Doug and I parted ways: "If that means dedicating new sources of revenue, fine. Do what is needed to solve the problem -- without waiting decades for FUNDAMENTAL CHANGE IN HUMAN SETTLEMENT PATTERNS" -- a reference to the argument that fellow columnist Ed Risse and I make regarding the necessity of reforming land use as part of any successful transportation policy.

"Tech companies are conscious of tax policy," said Doug, "but not driven by it, because it sees people as its resource -- not land or capital -- and the need to attract and hold the best people as its ultimate challenge."

Doug states the perspective of Northern Virginia's technology community better than anyone, which is why I love having him contribute to *Bacon's Rebellion*. And I can't expect him to convey all facets of his reasoning in a simple e-mail. But I can't escape the conclusion that he, like his peers, are still working in a, gasp, Old Economy frame of reference regarding transportation. The leading thinkers in Virginia's tech sector believe that the fastest, most effective way to improve mobility is to build more transportation capacity.

Nothing that I've read or heard suggests that the tech community regards transportation as ripe for technology-driven transformation. But, in fact, it is. I have identified at least four ways in which technology-intensive strategies can improve traffic congestion more cost effectively than building more mega-million highway and METRO rail projects. There may be others, but these four are powerful enough in themselves to make my case.

Telework/hoteling. The NVTC recognizes "telecommuting" as a legitimate policy alternative but hasn't put much muscle behind it. From my vantage point, Virginia should set the goal of *leading the world* in developing and deploying teleworking technology. That's not happening.

"Telecommuting" is a very dated concept, and the NVTC should be embarrassed to be maintaining a task force by that name. The phrase is very '80s, tied to the idea of employees working from home as an alternative to commuting to work. In the 1990s, the idea evolved into "telework", a strategy for equipping mobile employees with laptops, wireless connectivity and cell phones so they can do business anywhere -- in the office, at home, in a client's office, on the road, virtually anywhere.

The implementation of telework ran into a number of technical barriers, however, primarily the lack of ubiquitous broadband access, and secondarily the primitive state of collaborative and teleconferencing software. But the telecommuting/telework strategy has continued to evolve in the 2000s. Now the avant-garde concept is the "network of space", which combines the telework/mobile workforce phenomenon with office hoteling.

As John Vivadelli, the CEO of Richmond-based AgilQuest, explains, it makes little sense to assign a fixed office to every employee in the technology/ service economy. Tech/service employees do most of their business *outside* the office, with the result that many offices are only 50 percent utilized at any given time. Put another way, many technology and service companies are paying for more than *twice the real estate space* they require.

By enabling mobile employees to reserve office space when they need it, AgilQuest's utilization-measurement and scheduling software has helped clients save millions of dollars. While it's difficult for companies to justify investing in "telecommuting" programs that benefit *society* by getting commuters off rush-hour roads, businesses and government agencies now can save millions of dollars by slashing office overhead... while getting commuters off rush-hour roads. The cost-benefit formula has totally changed in the past decade.

(Full disclosure: Since writing "The Network of Space" in July 12, 2004, I have taken on AgilQuest as client of my newsletter business. The first edition of the newsletter will come out shortly.)

Obviously, AgilQuest, a Virginia company, would benefit from the wholesale adoption of the telework/hoteling/ mobile work-

force paradigm. So could other Virginia companies, from developers of teleconferencing and collaboration software to the system integrators who tie all the networking and telecommunications technologies together. If the "network of space" idea takes off, it has the potential to go global--and Virginia companies could ride it all the way.

Demand management. Another strategy for coping with traffic congestion is to inform commuters and businesses when and where traffic congestion is causing travel delays. A number of small Northern Virginia enterprises have been developing this niche and, should the idea ever reach critical mass, are well positioned to go national. Woodbridge-based SmarTek Systems manufactures radar sensors that can track how fast traffic is moving. Leesburg-based Trichord Incorporated captures the speed data from VDOT monitors and packages it for real-time distribution for travelers. Trichord's SpeedAlert service notifies subscribers when traffic along selected routes drop below speed thresholds they set. A competing company, TrafficLand, allows subscribers to view live video feeds of traffic conditions along selected Interstates in Washington, Richmond and Hampton Roads.

These technologies have two beneficial uses. First, VDOT uses them to monitor traffic conditions along the Interstates and respond to incidents as necessary. Secondly, commuters and businesses with large truck and van fleets find the information valuable. Traffic congestion wouldn't be so bad if people knew how long their drives would take. The biggest problem is uncertainty. While an *average* commute might take 30 minutes, motorists must guard against the possibility that on bad days the commute can take, say, 60 minutes. So, on top of the normal 30 minutes, motorists typically build in a buffer--15, 30 minutes, depending--to make sure they arrive at their destination on time. That's time consuming and expensive.

In theory, if sensors are installed in enough locations, traffic-flow data would allow motorists not only to adjust their times but to adjust their routes to less congested thoroughfares. Virginia is a proving ground for this technology. If Trichord and TrafficLand demonstrate here in Virginia that they have viable business models, they can take their products national.

Traffic Light Sequencing. The same video and radar sensors can be used to monitor traffic along heavily trafficked roads regulated by stoplights. There's no reason the technology can't be used to enable VDOT to monitor traffic congestion remotely and, from a central command center, make dynamic adjustments to traffic light timing in order to maximize the flow of vehicles. A further advance in sophistication would be to develop artificial intelligence to take a highly complex job with an infinite number of variables out of fallible, human hands. Installing sensors at every stoplight along a major thoroughfare would not be cheap but it could well increase throughput at significantly less cost than constructing additional lanes, especially in densely settled urban areas where the cost of right of way is prohibitive.

Integrating the sensors, wireless devices, command centers and AI would be a complex and highly specialized task that only companies with specialized skills could handle. If Virginia tech companies became first movers in this field, they could go on to conquer national and international markets.

Modeling and simulation. VDOT has developed a basic modeling/simulation capability that allows it to forecast the impact of different types of road and development projects on local and regional transportation systems. The department has developed detailed traffic models in Botetourt County just north of Roanoke and in Caroline County just south of Fredericksburg. The Warner administration hopes that local planners and boards of supervisors will utilize the traffic forecasts when evaluating the impact of proposed development projects.

It's too early to tell yet how successful the experiment will be. But it doesn't take a huge leap of imagination to contemplate the expansion of VDOT's transportation model to a statewide scale. Such an investment would take millions--perhaps tens or hundreds of millions--of dollars. But the ability to forecast the impact of different development patterns on traffic flow could save incalculably larger sums in avoided projects.

Although it may take decades to achieve "fundamental change in human settlement patterns," as Doug Koelemay suggests, it will *not* take decades to effect traffic congestion on the margins. A handful of the right projects in the right places can influence the driving patterns of tens of thousands of people right away. After several years of building the right projects in the right places across the state, the Commonwealth could avoid the cost of billions of dollars in highway, interchange and passenger- rail projects.

Of more immediate interest to the technology community, Virginia has the home-grown talent

to develop what would be the world's largest, most sophisticated traffic simulator. Hampton Roads is home to the Virginia Modeling, Analysis and Simulation Center associated with Old Dominion University as well as a number of supercomputer-crunching modeling/simulation centers doing work for the U.S. military. Unlike war-game simulations, transportation models developed for use in Virginia can be applied anywhere in the country. Expanding the scope and sophistication of VDOT's transportation/land use model could represent a huge business opportunity for the company, or team of companies, that helped make it happen.

These ideas are probably just scratching the surface. Turn the techies loose, and who knows what brilliant ideas they might conceive?

Virginia is the perfect launching pad for IT to transform the transportation sector. Not only do we Virginians have the technology skills, our IT sector is uniquely accustomed to working under government procurement and bidding rules. Given their experience in the government realm, Virginia companies could move more rapidly than their peers elsewhere to migrate the solutions developed locally to other states and metropolitan regions.

Virginia's technology community has a clear choice: It can throw its weight behind New Economy solutions to traffic congestion, which could trigger a chain reaction of new business opportunities for tech companies. Or it can stick with the Old Economy bromides, which, in addition to raising taxes, will create business opportunities mainly for the companies that dig rock, grade roadbeds and lay iron rail.

C'mon, Doug, it's not too late to change your mind. I know you're rooting for the techies, not the hardhats.

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Read more columns by Jim Bacon at
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