

# GOVERNMENT TECHNOLOGY

VOL 23 ISSUE 5

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT IN THE INFORMATION AGE

MAY 2010

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Real-life police  
technology rivals  
science fiction

**Special Delivery:**  
Address verification  
boosts revenue for  
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Teaming up for  
broadband bucks



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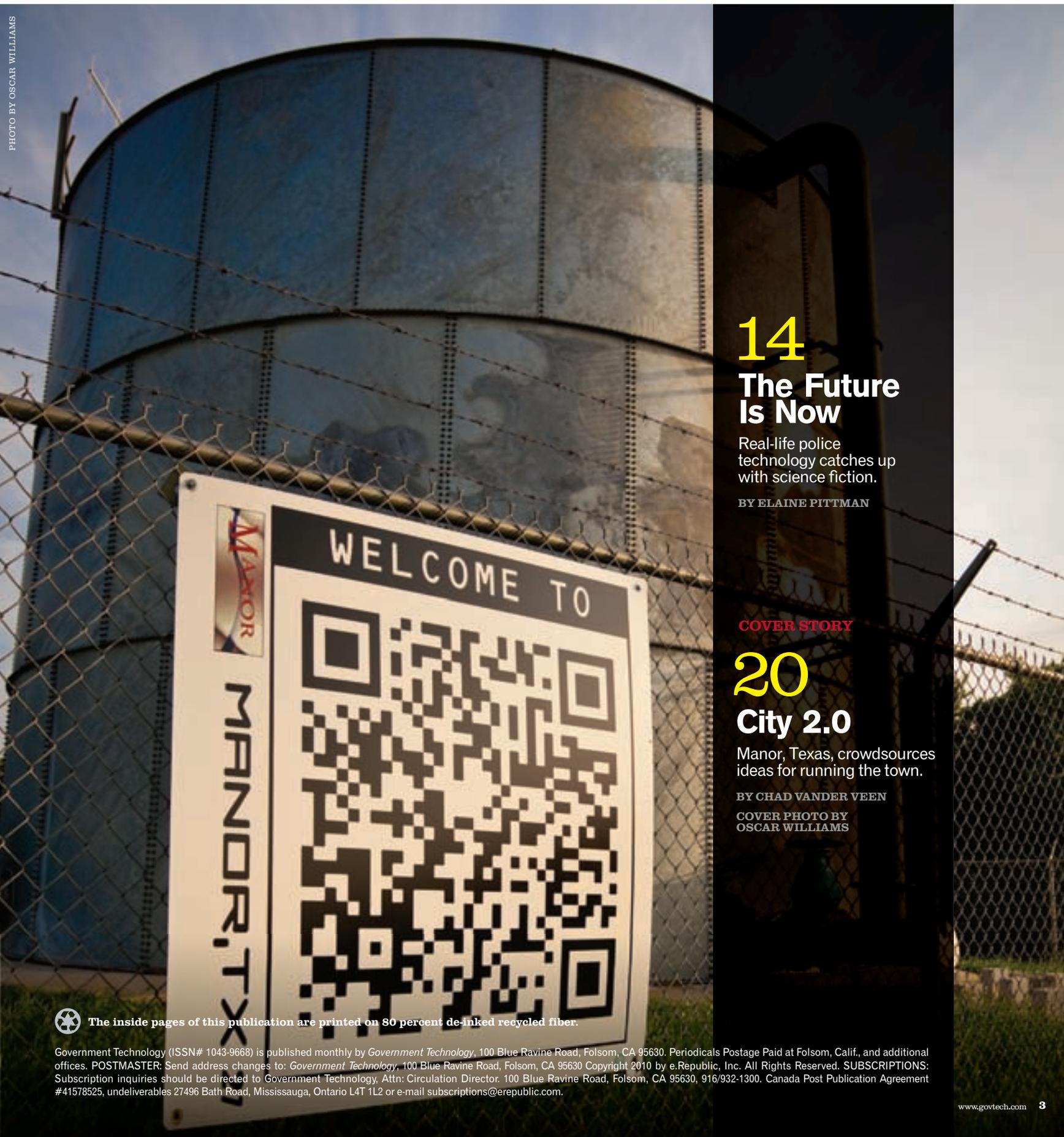
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## A New Form of Community Service

John Della Volpe is director of polling for Harvard University's Institute of Politics. For the past 17 years, he has supervised an annual survey of how young Americans view politics and public service. This gives Della Volpe a close look at what 18- to 29-year-olds think of government. Their feelings are mixed.

The 2010 survey shows that young citizens are deeply interested in helping their communities. Seventy percent think community service is an honorable thing to do. This figure rose to 80 percent among students at four-year colleges. "They are digital natives; they want to make an impact in real time," said Della Volpe in March at a conference sponsored by *Governing* magazine, a sister publication of *Government Technology*.

But the same young Americans who eagerly volunteer for community service are circumspect of government employment. Just 18 percent agreed that working in politics or government is appealing. That figure inched up to 23 percent among college students.

So it appears that government agencies have some work to do to attract the best and brightest of this emerging work force. "Before we can inspire them to work for us, we need to have a relationship with them. They need to trust you and they need to like you before they go to work for you," Della Volpe told an audience of middle-age senior government managers.

I mention these findings because this issue contains a great example of what can happen when bright members of the

so-called Millennial generation join government service. On page 20 is the story of Manor, Texas — a city of 5,000 outside of Austin — that recently launched an initiative called Manor Labs to harvest good ideas from citizens and put them into practice. Manor Labs is the brainchild of 23-year-old Dustin Haisler, the town's assistant city manager, CIO and one-man IT department.

Here's how it works: Citizens go to manor labs.org to submit proposals and vote ideas up or down. Each interaction with the site earns participants points — known as Innobucks — which can be spent on police ride-alongs, meals at local restaurants or other items. The best suggestions are adopted by the city government. Since its launch last October, Manor Labs has collected almost 100 ideas, and five were implemented, including one for retooling the city's work-order system.

"This is stuff we wouldn't have thought of, and that's the important thing. Because when you do innovation internally, you can only come up with so many ideas," Haisler said in an interview at *Government Technology's* GTC Southwest in Austin earlier this year. "Manor Labs empowers citizens to participate and become involved; it's a new form of community service — online."

Manor Labs offers a glimpse of what the future may hold for government as a younger generation enters public service. And perhaps Haisler's proven ability to make a difference in his community will inspire more of his peers to sign up. 

**GROUP PUBLISHER:** DON PEARSON [dpearson@govtech.com](mailto:dpearson@govtech.com)

**EDITORIAL**

Editor: STEVE TOWNS [stowns@govtech.com](mailto:stowns@govtech.com)

Associate Editors: CHAD VANDER VEEN [cvanderveen@govtech.com](mailto:cvanderveen@govtech.com)  
MATT WILLIAMS [mwilliams@govtech.com](mailto:mwilliams@govtech.com)  
MIRIAM JONES [mjones@govtech.com](mailto:mjones@govtech.com)  
KAREN STEWARTSON [kstewartson@govtech.com](mailto:kstewartson@govtech.com)  
JIM MCKAY [jmckay@govtech.com](mailto:jmckay@govtech.com)  
Justice and Public Safety Editor: ELAINE PITTMAN [epittman@govtech.com](mailto:epittman@govtech.com)  
Copy Editors: SARAH RICH [srich@govtech.com](mailto:srich@govtech.com)  
ANDY OPSAHL [aopsahl@govtech.com](mailto:aopsahl@govtech.com)  
Features Editor: HILTON COLLINS [hcollins@govtech.com](mailto:hcollins@govtech.com)  
Staff Writers: RUSSELL NICHOLS [rnichols@govtech.com](mailto:rnichols@govtech.com)  
KAREN WILKINSON [kwilkinson@govtech.com](mailto:kwilkinson@govtech.com)  
JESSICA MULHOLLAND [jmulholland@govtech.com](mailto:jmulholland@govtech.com)

**DESIGN**

Creative Director: KELLY MARTINELLI [kmartinelli@govtech.com](mailto:kmartinelli@govtech.com)

Senior Designer: CRYSTAL HOPSON [chopson@govtech.com](mailto:chopson@govtech.com)

Graphic Designer: MICHELLE HAMM [mhamm@govtech.com](mailto:mhamm@govtech.com)

Illustrator: TOM MCKEITH [tmcketh@govtech.com](mailto:tmcketh@govtech.com)

Production Director: STEPHAN WIDMAIER [swidm@govtech.com](mailto:swidm@govtech.com)

Production Manager: JOE HEART [jheart@govtech.com](mailto:jheart@govtech.com)

**PUBLISHING**

VP Strategic Accounts: JON FYFFE [jfyffe@govtech.com](mailto:jfyffe@govtech.com)

VP Bus. Development: TIM KARNEY [tkarney@govtech.com](mailto:tkarney@govtech.com)  
EAST

Regional Sales Directors: LESLIE HUNTER [lhunter@govtech.com](mailto:lhunter@govtech.com)  
EAST  
SHELLEY BALLARD [sballard@govtech.com](mailto:sballard@govtech.com)  
WEST, CENTRAL

Account Managers: MELISSA CANO [mcano@govtech.com](mailto:mcano@govtech.com)  
EAST  
ERIN GROSS [egross@govtech.com](mailto:egross@govtech.com)  
WEST, CENTRAL

Business Development Dir.: GLENN SWENSON [gswenson@govtech.com](mailto:gswenson@govtech.com)

Bus. Dev. Managers: JOHN ENRIGHT [jenright@govtech.com](mailto:jenright@govtech.com)  
LISA DOUGHTY [ldoughty@govtech.com](mailto:ldoughty@govtech.com)  
KEVIN MAY [kmay@govtech.com](mailto:kmay@govtech.com)

Exec. Coordinator to Publisher: JULIE MURPHY [jmurphy@govtech.com](mailto:jmurphy@govtech.com)

Regional Sales Admins: SABRINA SHEWMAKE [sshewmake@govtech.com](mailto:sshewmake@govtech.com)  
CHRISTINE CHILDS [cchilds@govtech.com](mailto:cchilds@govtech.com)  
JENNIFER VALDEZ [jvaldez@govtech.com](mailto:jvaldez@govtech.com)  
ANDREA KLEINBARDT [akleinbardt@govtech.com](mailto:akleinbardt@govtech.com)

National Sales Admin: WHITNEY SWEET [wsweet@govtech.com](mailto:wsweet@govtech.com)

Dir. of Marketing: LANA HERRERA [lherrera@govtech.com](mailto:lherrera@govtech.com)

Dir. of Custom Events: Associate Dir. of Custom Events: KARIN MORGAN [kmorgan@govtech.com](mailto:kmorgan@govtech.com)

Custom Events Coordinator: STACEY TOLES [stoles@govtech.com](mailto:stoles@govtech.com)

Dir. of Custom Publications: EMILY MONTANDON [emontandon@govtech.com](mailto:emontandon@govtech.com)

Custom Publications Editor: JIM MEYERS [jmeyers@govtech.com](mailto:jmeyers@govtech.com)

Custom Publications Writer: VIKKI PALAZZARI [vpalazzari@govtech.com](mailto:vpalazzari@govtech.com)

Dir. of Web Products and Services: WEB SERVICES MANAGER: PETER SIMEK [psimek@govtech.com](mailto:psimek@govtech.com)

Custom Web Products Manager: MICHELLE MROTEK [mmrotek@govtech.com](mailto:mmrotek@govtech.com)

Web Advertising Manager: JULIE DEDEAUX [jdedeaux@govtech.com](mailto:jdedeaux@govtech.com)

Web Services/Proj. Coordinator: ADAM FOWLER [afowler@govtech.com](mailto:afowler@govtech.com)

Subscription Coordinator: GOSIA COLOSIMO [subscriptions@govtech.com](mailto:subscriptions@govtech.com)

**CORPORATE**

CEO: DENNIS MCKENNA [dmckenna@govtech.com](mailto:dmckenna@govtech.com)

Executive VP: DON PEARSON [dpearson@govtech.com](mailto:dpearson@govtech.com)

Executive VP: CATHIEA ROBINETT [crobinet@centerdigitalgov.com](mailto:crobinet@centerdigitalgov.com)

Executive Editor: STEVE TOWNS [stowns@govtech.com](mailto:stowns@govtech.com)

Chief Content Officer: PAUL TAYLOR [ptaylor@govtech.com](mailto:ptaylor@govtech.com)

CAO: LISA BERNARD [lbernard@govtech.com](mailto:lbernard@govtech.com)

CFO: PAUL HARNEY [pharney@govtech.com](mailto:pharney@govtech.com)

VP of Events: ALAN COX [acox@govtech.com](mailto:acox@govtech.com)

Marketing Director: DREW NOEL [dnoel@govtech.com](mailto:dnoel@govtech.com)

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**Pentagon Embraces Web 2.0 in Social Media Policy**

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**Vermont Adopts Open Source Software Policy**

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**Web Comment of the Month**

“It won’t be Facebook that’s replacing traditional Web sites. But the techniques used in social media can be an advantage to upgrade our communication channels.”

*By Bart on Mar. 1, 2010, in response to our story Will Facebook Replace Traditional Government Web Sites?*

[www.govtech.com/replace](http://www.govtech.com/replace)

**48%**

The percentage of enterprise organizations still using Internet Explorer 6. [www.govtech.com/ie6](http://www.govtech.com/ie6)



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**Will Facebook Replace Traditional Government Web Sites?**

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**WHAT'S THE CAPITAL OF KANSAS? GOOGLE**

Topeka, Kan., Mayor Bill Bunten formally changed the name of the city to Google, Kan. — “the capital city of fiber optics” — for the month of March. The move was part of a brazen effort to win a spot in Google’s Fiber for Communities program. The Web-search giant announced in February that it will pick one or more cities for its pilot project to offer Internet access at speeds up to 1 GB per second.

[www.govtech.com/topeka](http://www.govtech.com/topeka)

**75,000**

The number of computer systems worldwide afflicted by the Kneber botnet cyber-attack.

[www.govtech.com/kneber](http://www.govtech.com/kneber)

**SCHOOL DISTRICT SPIED ON STUDENTS?**

A lawsuit brought against a Pennsylvania school district alleges that school officials violated students’ privacy by activating school-issued laptop webcams while they were at home. Officials denied the allegations in a letter posted on the district’s Web site.

[www.govtech.com/spycam](http://www.govtech.com/spycam)



**Hot List**

Here are the 10 most popular stories from March 4, 2010 to April 3, 2010.

- 1 The 10 Riskiest Cyber-Crime Cities**  
Security firm says Seattle, Boston and Washington, D.C., top list of most dangerous U.S. cities for online activity.  
[www.govtech.com/750409](http://www.govtech.com/750409)
- 2 Americans Rely on Libraries for Internet**  
Social networking, research and job hunting among top-ranked uses, according to University of Washington study.  
[www.govtech.com/750950](http://www.govtech.com/750950)
- 3 Purpose-Driven Social Networking Tools**  
Should a state spend \$1.15 million on a Web-based portal designed to connect students, support college and career transitions?  
[www.govtech.com/749000](http://www.govtech.com/749000)
- 4 Federally Funded Study on Electric Cars**  
EV Project gives electric vehicles and recharging infrastructure to states for two-year study.  
[www.govtech.com/749304](http://www.govtech.com/749304)
- 5 California CIO Teri Takai Named U.S. Defense Department IT Chief**  
Takai has led the beginnings of California’s massive IT consolidation initiative for term-limited Gov. Arnold Schwarzenegger.  
[www.govtech.com/750575](http://www.govtech.com/750575)
- 6 Site Reveals Salaries of New York State Employees**  
Conservative think tank launches Web site with comprehensive state financial data.  
[www.govtech.com/383701](http://www.govtech.com/383701)
- 7 Sacramento City Council Receives Agendas on Kindles and Netbooks**  
City Council switches from paper agendas to digital versions.  
[www.govtech.com/749789](http://www.govtech.com/749789)
- 8 FCC’s National Broadband Plan: ‘The Second Wave of Electricity’**  
Sweeping plan would overhaul U.S. broadband and make it the nation’s primary communications network.  
[www.govtech.com/749305](http://www.govtech.com/749305)
- 9 All Eyes Are on Los Angeles as City Deploys Cloud-Based E-Mail**  
CTO Randi Levin discusses city’s adoption of Google Gmail and other hosted services.  
[www.govtech.com/744804](http://www.govtech.com/744804)
- 10 Veterans Affairs Planning to Automate ‘Agent Orange’ Claims**  
200,000-plus new claims expected to be filed as VA recognizes more herbicide exposure illnesses.  
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# DRIVING AMBITION



Story and Photographs by **David Kidd**

**A**t the dawn of the automobile age in America, police departments were looking for new ways to respond to calls from the citizenry. First on bicycles, then on motorcycles, officers could rush to crime scenes. As cars replaced horses on city streets, new crimes came with them: Automobiles were stolen, caused injury and death, and were a means to escape from law enforcement.

By 1909, Detroit Police Commissioner Frank Croul was convinced that police departments needed their own cars. The city disagreed, so Croul purchased a new Packard with his own \$350. Within a year, the city's Common Council was convinced and purchased seven patrol cars. "Henry Calhoun, a plain drunk, was the first passenger carried in the department's first auto patrol," *The Detroit News* reported on Jan. 10, 1910.

Aside from their paint and lights, early police cars largely were similar to any other car on the road. In the 1950s, auto manufacturers began combining heavy-duty options into "police packages." But to this day, every police car is a modified version of a regular production passenger vehicle.

Carbon Motors aims to change that by building the first purpose-built police car, the E7. A deal has been struck to purchase an idle plant in Connersville, Ind., that used to make automotive heating and air-conditioning parts. Once financing has been signed off, the plan is to deliver cars within 36 months.

Recently a prototype E7 was on display at GovSec, the Government Security Expo and Conference, in Washington, D.C. The car looked good indoors and under the lights. Time will tell if it looks as good out on the streets.

See **page 14** for more law enforcement technology.



A California agency revamps its data center — going green, cutting costs and greatly increasing performance.

## REAL RESULTS

**THE CALIFORNIA NATURAL Resources** Agency restores, protects and manages the state's natural resources, including water. One of the largest departments within the agency is the Department of Water Resources (DWR), with about 3,500 employees. DWR supplies and manages the water delivery systems for California, provides flood protection through improvement of California's levees, inspects 1,200 dams and helps coordinate the State's integrated water management strategies.

It's a big job. And like all large enterprises, DWR needs a strong technology infrastructure to carry out its daily business. To improve its capabilities, DWR has been modernizing and consolidating its IT environments. A big part of that work was improving the data center used by both the DWR and the Natural Resources Agency.

"We looked at modernizing the data center from an IT infrastructure services

perspective, but also from an environmental perspective, so we could green-up IT," said Tim Garza, Chief Information Officer for both DWR and the Natural Resources Agency. "We looked at how to make it more energy-efficient from a cooling and power perspective, while also delivering a more effective and flexible IT infrastructure environment for the business."

With the new data center — built in the same space as the previous one — DWR drastically reduced the number of servers, replaced aging hardware and software, significantly improved the data center energy and cooling elements, and can now provide a more responsive and flexible IT environment for the business.

The new environment is 90 percent virtualized, and server racks have been reduced from 70 to just four. "We reduced our physical server count while increasing the overall

### Customer snapshot

**Objective:** The California Department of Water Resources (DWR) supplies and manages the water delivery systems for California, provides flood protection through improvement of California's levees, inspects dams and helps coordinate the State's integrated water management strategies.

**Approach:** Using a design created by HP and another company, DWR retrofitted and modernized its data center for greater energy efficiency and improved performance, with no interruption to production applications.

#### IT improvements:

- In keeping with the State's strategic plan, consolidated and greened its data center.
- Improved cooling and power usage efficiency.
- Greatly reduced the number of servers by using virtualization.
- Standardized the data center on HP Blade Servers.

#### Business benefits:

- Faster IT service to the business.
- Eliminated business risks associated with aged IT infrastructure.
- Improved storage environment.
- Better security.
- Much more flexibility than with the previous aging infrastructure.
- Greater ability for different agencies to share and collaborate.

server computing capacity through the use of virtualization on dense HP Blades," said Garza. "In addition, we've improved our cooling and power-consumption efficiency by about 30 percent." And now with fewer machines, maintenance and support costs are lower.

DWR completed the entire redesign and implementation in just 13 months, on schedule and within budget. Garza said the project demonstrates that the public sector can move just as quickly as the private sector. "We had a solid PDI approach, where the teams planned, designed and implemented all elements of the effort," he observed.

### Filling a Need

Hewlett-Packard was one of two major players in the data center's design. HP helped DWR with its consolidation and virtualization strategies. DWR standardized the data center on the HP Blade Server platform. In fact, Garza said the strategy was built around the dense capabilities of those servers. HP software is also used in the data center as a key monitoring and management tool set. HP helped transform the DWR data center monitoring and management processes to ensure a proactive approach to maintaining the new data center.

The new center was greatly needed. "We had an aging IT infrastructure that put the business of DWR at risk," Garza said. "The infrastructure was unable to deliver the business needs for flexibility and extended IT services. We needed to modernize the IT infrastructure and eliminate the business risks associated with the aged infrastructure."

With the new data center, DWR can support the business more quickly and effectively, with greater IT infrastructure services and storage capacity. Sharing services and collaborating with other departments and business stakeholders are now much easier thanks to the new, consolidated environment. Information and network security are stronger. "The way we present data now through our SOA [service-oriented architecture] infra-

structure has also been really beneficial for the business," said Steven Croft, Enterprise IT Architect Chief for DWR.

The existing space for the data center had limitations, which put some constraints on the design. The main limitations were little depth with the raised floor and the low ceiling height. HP turned those into positives, by going with a "bay and chase" design for air flow. The "bay" is a walled-off area behind the data center, housing the coolers. As the bay pumps cool air into the data center, heat coming off the servers is forced upward into the "chase" area, and then outward. With that approach, the low ceiling became a plus, because the rising hot air could be forced out more quickly.

The design also included a new way to arrange overhead cables, reserving under-floor space for nothing but power whips. The design was cost-effective, made use of existing physical assets, maximized floor space and leaves many options for the future. "It also lets you put devices that really don't need cooling in the bay, like the electrical units and cooling units," Croft said. "And then you have a smaller area to cool inside. So there are efficiencies all around."

DWR used a "green field" approach, clearing off floor space where it could "grow" the new data center. Thus there were no constraints from the legacy environment, and the new data center could be completely original. With both the old and new centers side by side, legacy applications were then migrated to the new one with no downtime. HP Services was instrumental in migrating DWR's SAP systems from the legacy center to the new data center HP platform. Garza called it "an outstanding migration effort." He added that the process went very smoothly, in part due to HP's expertise and ability to help DWR take advantage of the new virtual environment.

### Big Picture

The data center project fits perfectly with the State's information technology goals.

"This effort is totally in alignment with the current California strategic plan set forth by State CIO Teri Takai in the areas of consolidation and shared services while reducing costs," said Garza. "We're reducing infrastructure costs, and at the same time improving the greening of IT. Those are some of the State strategic initiatives we've been able to execute against."

In addition to HP and other key partners, Garza praised his team for a job well done. "There was great leadership from my operational leads, Michael Hom, Robert Syphax and Robert Dolliver," he said. "In addition, our DWR team did an outstanding job putting their hearts and souls into this effort." Garza added that Croft, the enterprise architect, provided strong direction both in the architecture and in delivering the project in a cost-effective way. "He operated pretty much in a private-sector mentality," said Garza.

HP helped DWR get set for the future. "They have been very instrumental in helping us do knowledge transfer to our own staff," Garza said. "So we're not depending on their expertise to sustain this. We are now self-sustaining with these skill sets."

Collaboration was a key concept throughout. "This was a great example of a partnership between a major public-sector entity and a major private-sector provider," said Garza. "HP also provided leadership in some of the collaborations with the other strategic partners. And everybody worked well together to deliver what we needed for the State, from a DWR and Resources Agency standpoint."

### Customer solution at a glance

#### Primary applications:

- HP Enterprise Services: SAP Migration, Data Center Design & Virtualization
- HP BTO Software: Operations Manager, Business Availability Center, Network Node Manager, Performance Insight, Universal Configuration Management Database, Discovery and Dependency Mapping, Server & Client Automation

#### Primary hardware:

- HP C7000 Chassis with BL460s



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[www.hp.com/go/government](http://www.hp.com/go/government).



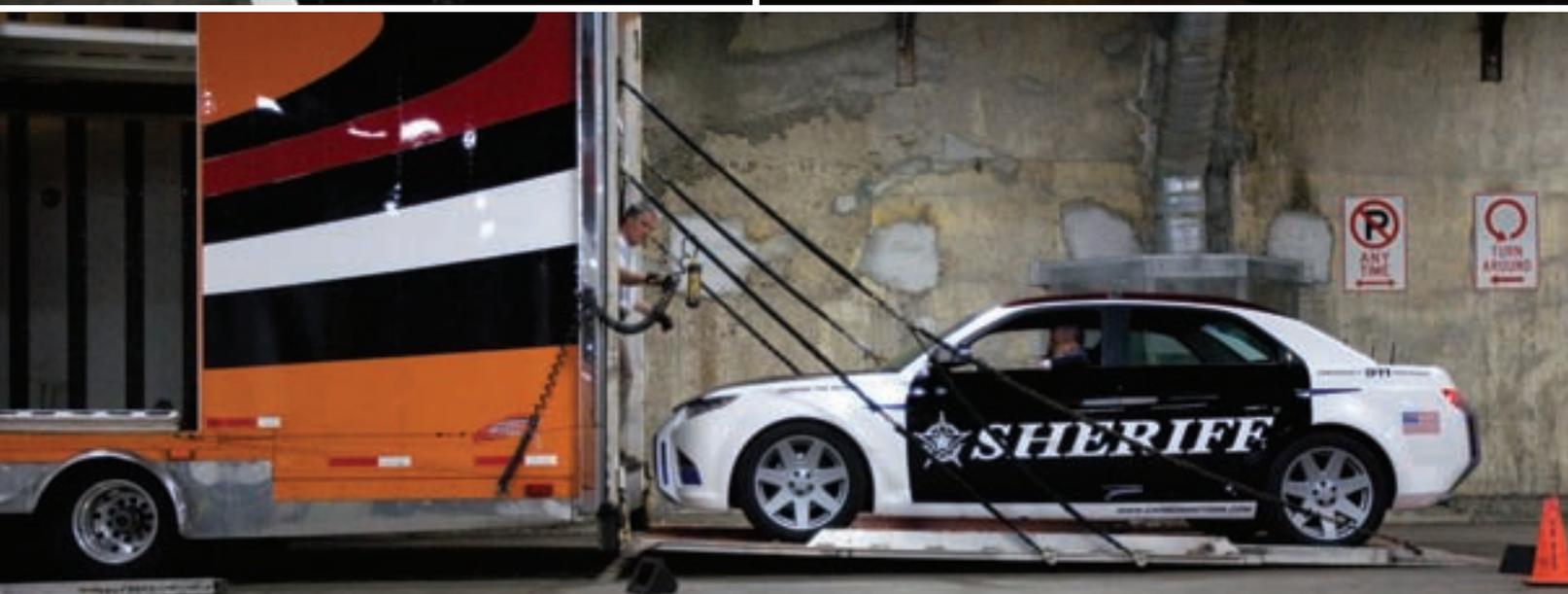
**Left, top to bottom:** Emergency lights are integrated into the roof, eliminating the need for a light bar. Rear-hinged, wide-opening back doors allow easier access to the (hoseable) back seat. Forced-induction diesel engines will be supplied by BMW. No domestic manufacturer currently makes a certified diesel engine for passenger cars, according to Carbon Motors.



**Below:** Cockpit with fully integrated, factory-fitted law enforcement equipment. Purpose-designed seats accommodate on-body equipment carried by officers. The car has 360-degree exterior surveillance capability and an automatic license plate recognition system.



**Opposite and Bottom:** Not yet ready for the street, the E7 prototype makes the short drive from display stand to transporter for the trip home.





**WATCH VIDEO**  
of the interview with  
Richard Gillihan at  
[www.govtech.com/gillihan](http://www.govtech.com/gillihan)

## Richard Gillihan

Chief of IT Operations and Consulting,  
California Department of Finance

### 1 What were your primary concerns when advising California's IT consolidation?

When the Office of the State CIO looks at doing a statewide policy, first we try to understand what they want to accomplish and how that would impact state agencies. With things like consolidation, we leverage economies of scale. Could we maximize the benefits of the data center and other shared services, and drive costs down?

### 2 Does the Department of Finance think the consolidation is a good idea?

We're behind the policies and supportive of the strategic direction. It's about understanding what the state is trying to accomplish and making sure we're positioned to reach those objectives.

### 3 Do you think finance officials tend to fall into the trap of saying 'no'?

It's an unfair label sometimes. Unfortunately somebody has to be the one to say no. There's a little backlash that comes with that, but we're not just saying no for the sake of saying no. We're looking at the statewide perspective, prioritizing the resources and requests we have, and looking at the revenue projections. Ultimately we're asking, what's in line with the governor's priorities? What investments represent the best return on investment, and quite frankly, what do we think the Legislature will support?

### 4 What obstacles should a state that's trying to replicate your efforts expect?

They need to keep an open mind and realize you have to shake the apple cart. You don't drive change without ruffling a few feathers, and it takes a lot to get people to realize that we can do business differently. It doesn't necessarily take new money to make it happen. We can look at our existing dollars that we'd otherwise spend refreshing our existing environments and spend more cooperatively on shared services and common solutions. 

With California implementing its IT consolidation, guidance from **RICHARD GILLIHAN**, chief of IT operations and consulting for the California Department of Finance, was crucial, according to California CIO Teri Takai. Gillihan recently spoke with *Government Technology* about the challenges and concerns of advising an IT consolidation from a financial standpoint.



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Cops have an extra set of eyes on the street with this license plate reader, which scans a vehicle's plate number and records its GPS coordinates.

# THE Future IS NOW

Real-life police technology catches up with science fiction.

**I**MAGES OF THE FUTURE of police technology were once only found in movies. James Bond's gadgets left audiences awestruck — and wondering when the tools might be used by their state and local law enforcement offices. The time, it turns out, is now.

In the Southwest, one state is testing a device that shoots a small GPS-equipped dart that attaches itself to a suspect's vehicle during a high-speed pursuit. On the West Coast, a police department is using ear-mounted video cameras that capture an officer's-eye view of traffic stops and other incidents. Police departments on the East Coast are using cameras on patrol cars to scan and track the license plates of each vehicle they pass, which lets them recoup overdue parking violations fines. It seems real life is catching up with science fiction.

Law enforcement technology may be evolving, but it hasn't changed the core responsibilities of police officers' jobs. Lt. Raymond Foster, author of the book *Police Technology*, said police officers still must talk to people and gather information. "Evidence is nothing but information," he said.



**ARIZONA:** Police officers use the StarChase Pursuit Management System to launch a GPS device from a patrol car onto the suspect's vehicle during a high-speed chase.



However, vast improvements have been made in detecting information, correlating it with databases, and exchanging data with others. "Technology has enabled us to find new information and new ways of organizing information to help us solve and prevent crimes," said Foster, a retired Los Angeles Police Department officer.

These innovations will keep citizens safer, and they offer an intriguing look at what the future holds for law enforcement technology.

### Redefining Police Pursuits

Policies for high-speed police pursuits vary among law enforcement departments, but all agree that car chases are dangerous. To help reduce the number of high-speed pursuits and the deadly collisions associated with them, last year the Arizona Department of Public Safety (DPS) began piloting

the StarChase Pursuit Management System, which uses a patrol car's mounted launcher to shoot a GPS-equipped dart at a fleeing vehicle.

"It's a device that's mounted on the front of the patrol car, and there is a sighting device, targeting device and a deployment device inside the patrol car so the officer can adjust the aim depending on the type of vehicle," said Lt. Stephen Harrison, the department's public information officer.

Officers use a laser pointer to aim and then shoot the dart, which attaches itself to the suspect's vehicle. The dart includes a battery and wireless transmitter, allowing officers to track the vehicle's movement. "Dispatch is hooked into the device; they can actually monitor it on a computer screen with a map," Harrison said. "They can track where the vehicle is going, how fast it's going, if it's taking off-ramps or driving city streets."

Remote monitoring lets officers follow suspects from a safer distance so that suspects don't realize they're still being tracked. Dispatchers deploy officers around the suspect's location so that once the vehicle stops, officers can move in and detain him or her.

Harrison said the device has been used on stolen cars and human smuggling cases.

"Particularly in human smuggling, we have an issue where the smugglers have no regard for human life, so they will speed away and quite often have a horrific collision, injuring and killing people — and then the driver flees," he said.

The pursuit management system costs about \$4,500 per car. For tactical reasons, Harrison couldn't say how many patrol cars in Arizona have the system. But he said the devices are more cost-effective than having a helicopter follow a suspect's vehicle, which is a common practice nationwide.

The DPS found that in some instances, the system helps police avoid a high-speed chase altogether. Some violators will drive off as the officer is approaching the vehicle, so the officer will tag the vehicle with the device before the suspect can make a break for it, Harrison said. "The suspect doesn't even know they've been tagged, and we just let them drive off — they think they're free, but we are still following them," he said. "We've had great success with the system."

The one barrier the police department encountered was finding a place to install the system on the front of the patrol car where it wouldn't interfere with the siren and the vehicle's operation — the best location

### TECH TRENDS:

Lt. Raymond Foster, a retired Los Angeles police officer and author of *Police Technology*, identified four future trends in law enforcement technology:

- 1. The search is still on** for a lightweight, easy-to-use nondeadly weapon. Noting that Tasers are beginning to be restricted because people have died after being hit with an electroshock weapon, Foster said, "The Holy Grail is the stun gun from the original *Star Trek* series, and that's what they've been searching for forever."
- 2. The use of nanotechnology** in ballistic vests and lightweight equipment.
- 3. The evolution of crime mapping** to combine more data and use predictive analytics. "With more data, it will give us the ability to better draw inferences ourselves," he said.
- 4. While many agencies are using new technology** to communicate with others, Foster thinks the biggest change for interoperability will be nontechnical. Adopting standardized radio code or plain language will be the biggest step toward interoperable communications in the future, he said. "What prevents agencies from talking is not so much the technology as it is the culture."

PHOTOS COURTESY OF THE ARIZONA DEPARTMENT OF PUBLIC SAFETY



## What Happens Next?

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**CALIFORNIA:** Officers in the San Jose Police Department are testing the Axon head camera, which rests on the officer's ear and records video and audio of their interactions with the public.



to the Axon Tactical Computer, a 4.3-inch touchscreen that attaches to an officer's belt and enables video playback.

"Our officers are always in the field and we're constantly being recorded," said Officer Jermaine Thomas. "So now you have it from an officer's point of view — what the officer is seeing and exactly what the subject or subjects have said in regard to any type of incident."

The department's policy requires that the officers activate the device anytime they're on a call for service or at an incident, Thomas said. San Jose's police officers have found that recording their interactions with the public can change the way citizens react. "It's a great mechanism because officers state that people do act different because they're being videotaped," he said.

At the end of a shift, the devices are returned to a docking station where the information is downloaded to a server and the battery is recharged. Thomas said the recordings are stored for one year and can be retrieved for internal review or to show in court.

One drawback has been the bulkiness of the new wearable technology. However, Thomas said that in the future the technology will get smaller and easier to wear.

Retired Los Angeles police officer Foster also worries that officers may tactically com-

was the car's grille. Space also was needed inside the vehicle to house the targeting and deployment device, and with laptops, radios and other equipment running, room and electrical power can be maxed out in patrol cars. Harrison said it can come down to deciding to install the pursuit management system or another technology, like an in-car camera system, due to the limitation of the vehicle's electrical capability.

"High-speed pursuits are difficult; you don't know the driver's capabilities, the vehicle's capabilities," he said. "There is a significant safety factor in addition to a liability factor of chasing somebody at high speeds. ... We think it's an excellent tool to

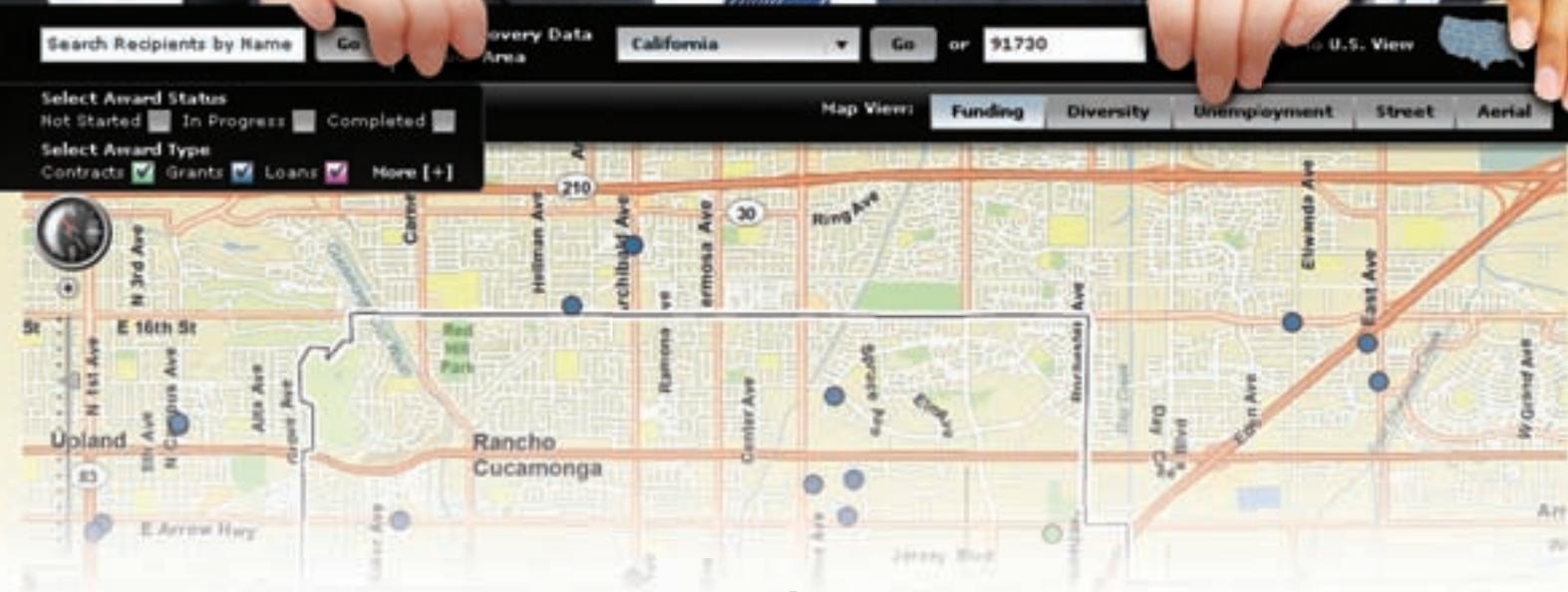
reduce the carnage associated with high-speed pursuits."

### Freeze Frame

Dashboard cameras have become commonplace in patrol cars, but the San Jose, (Calif.) Police Department is taking the technology to a new level — eye level. In December 2009, 18 officers began using the Axon head camera made by Taser International. As part of a free trial, the officers are testing the cameras, which rest on the officer's ear like a Bluetooth device, with a wrap-around head brace securing the HeadCam. The start/stop recording button rests on the officer's chest and also connects

**18**

The number of officers testing Axon head cameras in the San Jose (Calif.) Police Department.



# Maps Improve Government 2.0

GIS evolves into a strong platform for Gov 2.0, enabling greater analysis, collaboration and citizen participation.

**GOVERNMENT 2.0 IS HERE TO STAY.** In a relatively short time, the notion of unprecedented transparency, accountability and citizen participation in government has become the norm. And it's enabled by Web 2.0 tools. It's now common for government to use these tools for greater openness and collaboration.

The federal government is leading the way, bringing governance closer to the citizenry than ever before. "Gov 2.0 is taking constituent services to the next level, by leveraging and encouraging more citizen participation through Web 2.0 technologies," said Jack Dangermond, owner/founder of ESRI, the industry leader in GIS.

Gov 2.0 makes expanded use of technologies including cloud computing, social media and GIS. "Governments are discovering that GIS data and analysis are an effective social medium that can be geo-referenced to social networks such as Twitter, Facebook, YouTube and blogs," Dangermond said. "Traditional data will be enhanced through Web 2.0

## “Opening government and sharing data through GIS are strengthening democratic processes and the health of the nation.” —Jack Dangermond, Owner/Founder, ESRI



mashups, user-generated content and crowd-sourced data, resulting in government that is much more communicative and participatory.”

Government is openly sharing authoritative data with citizens on the Web, in the cloud and in real time. GIS forms a powerful framework for achieving this. A good example is Recovery.gov, where the federal government shares information on where and how economic stimulus funds are being spent.

The GIS mapping, powered by ESRI, gives citizens a neighborhood-level look at how their government is working.

### Making It Happen

Citizens become much more engaged when a map shows them what’s happening in their own neighborhoods. GIS makes that possible. People easily understand maps, which leads to better discussion around an issue. “With GIS, citizens can see how government is performing and use that information for better decision-making,” noted Dangermond. GIS allows data to be analyzed, shared and discussed in ways that were never possible before.

Cloud computing adds another key element to open government, allowing a huge variety of data sources to be combined in intriguing new ways. “Geo-enabling Government 2.0 is leading to a rich set of cloud computing tools, open application programming interfaces and resource centers that offer the opportunity to create good government through geospatial knowledge,” Dangermond said. “This expansion of geographic knowledge will result in strong place-based governance policies.”

All governments have large amounts of data related to location. This data has been used for collecting taxes, studying crime statistics, tracking assets, zoning, and making service calls—it’s a very long list. In the past, this spatial data has been one-dimensional, residing within tables. With GIS the data becomes much more useful, helping government make better decisions.

GIS can help determine crime trends, or where to put wind turbines and solar panels. Maps can show valuable data on rising sea levels, or paths of hurricanes. They can help government determine where to spend money on levees, dams, roads and more.

### Key Player

Numerous government agencies are using GIS from ESRI to share information. BroadbandStat uses GIS so states can map broadband coverage and initiatives, helping them evaluate broadband expansion scenarios. Virtual USA brings GIS to numerous agencies working on homeland security. There are many more government agencies providing unprecedented transparency and accountability via GIS.

Gov 2.0 also makes greater use of information from the public. User-generated content is becoming a bigger part of government processes, as users can give more input than ever before with today’s technologies—cell phones, digital cameras, Twitter, mobile apps and more. Citizens can easily point out problems to government—potholes, downed power lines and more—often with cell phones that also give geospatial information. Government can display the problems—and the solutions—on maps.

Do you need to see all the schools within 2,000 feet of a hazardous materials spill? GIS can show you within seconds. Want to predict where childhood obesity rates might increase in the next five years? Again, GIS can show you. And it’s not just about seeing data on maps; it’s also about analyzing the data and seeing relationships. It’s about seeing data in more meaningful ways and using the knowledge to solve problems.

“Opening government and sharing data through GIS are strengthening democratic processes and the health of the nation,” Dangermond said. “By leveraging government IT correctly, we can have a better business atmosphere, achieve more prosperous economic development, consider the environment more effectively, and have open communication and citizen engagement with government agencies.”

# EPA Maps Stimulus Funds

*Citizens can see where and how the Environmental Protection Agency is spending Recovery Act funds.*

Americans care about the environment. They're also interested in how money from the American Recovery and Reinvestment Act (ARRA) is being spent. The U.S. Environmental Protection Agency (EPA) has merged data on these two concerns, creating an online application that shows where and how ARRA funds are being spent to improve the environment.

The EPA is administering \$7.22 billion in stimulus funding. On the EPA's map, the public can see data for any state, American Samoa and Puerto Rico. Data includes total funds obligated for each of the agency's four funding categories, and gross outlays in each category to date. Colors and charts help users grasp the data more quickly.

"We wanted to make sure we had easy-to-use interfaces, like the commercial mapping services that have become so popular over the last couple of years," said Jerry Johnston, geospatial information officer for the EPA. "We brought ESRI in with that vision, to help us put something together that's intuitive, visually appealing and really uses geography to tell the story of how our stimulus funds are being distributed." The Web site moves from visualiza-

**"It's about engaging citizens directly in the processes that used to be less transparent."**

—Jerry Johnston, Geospatial Information Officer, EPA

tion to a map that provides analysis tools and communicates contextually.

The map shows how ARRA money is being distributed in four categories: State and Tribal Assistance Grants for water quality and other initiatives, the Superfund program for cleanup of hazardous sites, the Leaking Underground Storage Tank Fund, and audits and investigations conducted by the EPA Office of Inspector General. Some of the ARRA money was added to the EPA's environmental program and management funds, which are also shown on the map. Currently the map displays data at the state level, but the next version will allow users to see data at the neighborhood level, providing even more transparency.

The EPA also is working with ESRI on ideas for creating maps from volunteered geographic information (VGI)—data submitted by the public. The crowd-sourced project

could lead to more citizen input, which could impact policies and regulatory processes. "The VGI approach is about empowerment of citizens across the country, and giving them an opportunity to tell us something," Johnston said.

In addition, ESRI is collaborating with the EPA and the U.S. Department of the Interior to consider ways to integrate spatial data into Data.gov, in order to support open data initiatives. This enables people to access federal government data sets for use in a variety of applications. It's all in keeping with the Gov 2.0 approach. "It's about engaging citizens directly in the processes that used to be less transparent," Johnston said. "I think GIS has a huge opportunity as a field—to make a big change in social government and collaboration among different communities for better decision-making."

# Food Environment Atlas

*Online map gives a comprehensive look at numerous factors affecting health and nutrition.*

Government 2.0 embraces government that is more open and collaborative. As governments look to develop new approaches, the Economic Research Service (ERS) of the U.S. Department of Agriculture (USDA) has created the Food Environment Atlas, to provide a spatial overview of citizens' access to healthy food. The atlas is intended to stimulate research related to food availability and the dietary choices made by U.S. citizens.

The atlas includes 90 indicators related to people's food environments, including access to healthy, affordable food; proximity to grocery stores; number of full-service restaurants; expenditures on fast food; physical activity levels; demographics; income and more. Much of the information goes to the county level, and it's all easily viewable on an interactive map, which was created with ESRI's ArcGIS Server solution.

Data was collected from a wide variety of public- and private-sector entities. With this free application, researchers can look for trends and causality, while citizens can see what's happening where they live. The authoritative data presents a wealth of actionable information. And with 90 different indicators, there are virtually unlimited ways to combine and compare data sets.

The Food Environment Atlas was conceived while the ERS was working with others on a study of food deserts—areas with limited access to affordable and nutritious food. "People in the White House, and USDA leadership, started asking us questions about the data, such as, 'Where are these food deserts? Who's in them?' That started

the conversation," said Vince Breneman, chief of the Research Support Branch in the Information Services Division of the ERS. At the same time, first lady Michelle Obama's staff was working on children's nutrition issues, and the two groups began talking. That provided more momentum toward creating the atlas.

The atlas now supports the first lady's campaign to end childhood obesity. With the atlas, people can see how other data—proximity to supermarkets versus fast-food restaurants, for example—might relate to obesity. "Putting it all together is not something that had been done before," Breneman said. "So creating that kind of visual interface for people to step through a host of variables that are related to obesity—we thought that was a valuable thing."

There is much more information as well. Users can see the number of farmers markets or convenience stores in a county, or the percentage of households with no car that are more than a mile from the nearest grocery store. Simple check boxes change the maps instantly.

The result is a powerful tool for collaboration. It gives people the ability to analyze data and communicate contextually, in order to solve problems. "It promotes discussion," said Breneman. "And the discussion could be about obesity. It could be about data. It could be about technologies for delivering information. We found that it's done all of those."



**"It promotes discussion. And the discussion could be about obesity. It could be about data. It could be about technologies for delivering information. We found that it's done all of those."**

—Vince Breneman, Chief, Research Support Branch, Information Services Division, ERS, USDA



To find resources and learn more about GIS for Gov 2.0, visit [www.esri.com/gov20](http://www.esri.com/gov20).

promise themselves because they want to ensure that the camera is on before responding to an incident. "I hope that somebody doesn't think they should switch on their camera before they take the action they're supposed to take," he said.

Thomas said the device constantly stores video footage. When the officer hits the record button the camera has already recorded the previous 30 seconds, although it lacks audio. "When something happens, if the officer doesn't have time to [turn it on], if he's in a high-risk situation he's going to have to deal with that first," he said. "But once it's over, you can tap the button and it actually records 30 seconds before you turn it on."

### The New Ride-Along Partner

As the recession continues to batter state and local government budgets, the nation is looking for inventive and cost-effective methods to recoup funds. Although license plate recognition systems have been used in the United Kingdom since the '90s and became popular in the U.S. during the last decade for spotting stolen vehicles, at least one locality is repurposing them to help collect the \$1 million owed to its parking violations department.

The Greenwich (Conn.) Police Department outfitted two patrol cars with a device that can scan up to 3,600 license plates per minute while officers drive on patrol. The automated license plate recognition system, Elsag North America's Mobile Plate Hunter-900, uses two cameras attached to the patrol car, one on the left side and one on the right. "They're angled and have wide lenses so they'll capture the license plates of cars approaching, as well as cars that are parked on the sides," said Greenwich Police Sgt. John Slusarz.

Officers manually upload three lists into the system: one from the local Parking Violations Office that includes the town's parking ticket scofflaws; a list from the Connecticut Department of Motor Vehicles of expired, canceled and suspended license plates; and one from the FBI's National Crime Information Center of wanted people.

The cameras are linked to software that runs in the background on the officers' laptops. While they're on patrol or responding to a call, the system scans all license plates the car passes. "If it finds one that's



PHOTOS COURTESY OF ELSAG NORTH AMERICA

### CONNECTICUT:

The automated license plate recognition system utilizes two cameras attached to the top of a patrol car to scan the license plates of vehicles it passes.

on one of the lists, it will advise the operator that it just located one of the plates and what it's on the list for — whether it's a stolen car, unregistered or has suspended registration, or whether it's a scofflaw violator," Slusarz said. The software also shows a photo of the vehicle and says which side of the patrol car it was on.

"For a patrolman, collecting fines for parking violations isn't the top priority. So if he's going to a call and the system says 'scofflaw violator,' that's the last thing on the list for him," he said. "But if he's on routine patrol and

goes by a scofflaw violator, then his practice is to stop and call Parking Violations to make sure it hasn't been paid since the system was last updated." A parking violations employee puts a boot on the vehicle, which is removed after the individual pays the fine.

Although it cost about \$40,000 to outfit the two patrol cars with the technology in October 2009, two months later about \$5,000 in outstanding parking fines had been collected using the system. Slusarz estimated that the system would continue locating about \$2,500 per month in overdue fines — money that will aid local agencies during the tough economy.

Another benefit of the system is that it records the license plate number and GPS coordinates of vehicles it scans, which is especially useful when an officer is responding to a call. Slusarz said officers manually track the license plates of vehicles near a crime scene, but the system completes that task automatically. Officers also use the system to search for a specific plate, like one driven by a burglary suspect, to determine if the car has been in the area before. "It's used as an investigative tool as well, which is very good," he said.

In the future, the police department wants to purchase surveillance-type license plate readers that will attach to telephone poles. Slusarz said there are many vehicle thefts in the spring and summer, and the technology will help to track the vehicles. The patrol car-based system is also used by nearby police departments in Stamford and Norwalk, and the towns are interested in creating a regional fusion center to share information.

"All the cars that are collecting this data will be able to extend the data to this one centralized location," he said. "That way, officers who are doing their investigations and are looking for particular cars and patterns with these cars can log in to the center and be able to see and track patterns."

These new technologies highlight merely a few examples of how technology has changed and evolved to aid law enforcement officers. As for the future, the possibilities seem endless. 

3,600

The number of license plates scanned per minute by the Greenwich Police Department's automated license plate recognition system.

*Manor, Texas,  
crowdsources  
ideas for running  
the town.*

**Dustin Haisler,**  
CIO, Manor, Texas





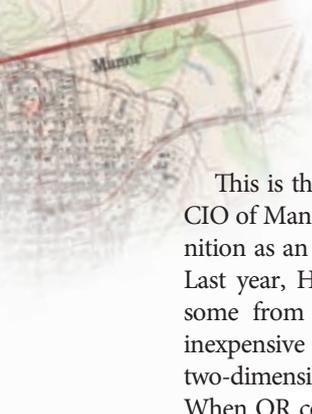
**By Chad Vander Veen**  
*Associate Editor*

# City 20

## **EVERYONE APPRECIATES BEING RECOGNIZED**

for doing good work. If a raise or a promotion aren't in the cards, having a couple of paragraphs praising your work appear on the White House's official blog isn't too shabby a substitute. It's even more remarkable if the work garnering attention is done by a 23-year-old working in a town of 5,000 people.

**Photos by Oscar Williams**



This is the reality for Dustin Haisler, the CIO of Manor, Texas, who is gaining recognition as an innovator in local government. Last year, Haisler earned praise (including some from this magazine) for dispersing inexpensive Quick Response (QR) codes — two-dimensional bar codes — all over Manor. When QR codes are read by mobile phones with the appropriate free software, users are directed to a Web site that has more information about the tagged object.

But it was one of Haisler's newer endeavors, a Web platform called Manor Labs, that President Barack Obama's tech team found appealing. Manor Labs, which launched in late October, is a Web portal where citizens can submit ideas to improve their city. From conception to (possibly) reality, every decision city officials make about a submitted idea is put in plain sight. At the same time, users can participate in and affect an idea's development. For a president who is trying to deliver on promises of government transparency, it's easy to see why the White House is giving Manor Labs a closer look.

### Turning Ideas Into Solutions

Haisler likes to describe Manor Labs as an open innovation portal. "Instead of just taking ideas," he said, "we're taking those ideas and turning them into actual solutions off the platform."

Manor Labs, which can be found at manorlabs.org, features elements of social media sites like Facebook, GovLoop and Digg, where users promote or bury items submitted by others. Manor Labs depends on user-submitted ideas. When users register with Manor Labs — something anyone, anywhere can do — they're given 25,000 "Innobucks," a virtual currency for use on the site. Various activities, such as commenting, voting or submitting an idea, earn users more Innobucks. If users earn enough,



**"Instead of just taking ideas, we're taking those ideas and turning them into actual solutions off the platform."**

they can shop at the Manor Labs store for prizes like a Police Department T-shirt or even buy the right to have a week named after them.

The cornerstone of Manor Labs is soliciting ideas from city residents, or anyone else, to make the city a better place to live. What makes Manor Labs appealing besides the prizes is that

users can actively participate in making an idea come to fruition. When an idea is submitted, it goes into what Haisler calls the "idea funnel," which has four levels: incubation, validation, emergence and closed.

"When an idea is suggested, it immediately falls into the incubation category," Haisler said. "Once it's in that category, people can vote and comment on it, and

whoever submitted the idea can recruit team members to be a part of it. They must

have [a certain number of] votes, page views, comments, and so much 'buzz' behind their idea before it advances. When they meet all of those criteria, the idea automatically graduates to the idea validation stage. So there's no staff involvement.

Once it's at the validation stage, a department head will evaluate the idea and he or she will review it on a series of metrics."

The metrics include determining what problem the idea addresses, whether it's sustainable and how much, if anything, it will cost to implement. If the idea fails in any of these areas, it's returned to the incubation stage with details explaining why it was rejected. If an idea is approved in the validation stage, however, it moves on to the emergence stage.

"That's where we all sit down — all the department heads — and talk about each idea and figure out if this is something we can pilot," Haisler said. "Is it something we can partner with a company or university to do? Can we develop it with open source software? Is this something that's a minor change like flipping a switch?"

Although Manor Labs was launched just a few months ago, several ideas have already



#### IDEAS OF THE DAY

##### More sidewalks and a ...

Posted by: [cmanor](#)  
on 01/01/2010

Posts: 0

I would like to see Manor become a little more "pedestrian friendly." For those of us who live in Bell Farms and Carriage Hills, its not easy for us to get downtown without a

[Read more](#)

More Sidewalks and a

EcoFinder Iphone App from

Promoting Retail

### The Big Idea:

Manor Labs lets users post any idea that strikes them, as long as it relates to city business. Ideas are sorted by category, such as administration, police department, public works and economic development, allowing users to brainstorm or share inspiration. Manor Labs also posts some of the highest-rated ideas in an "Ideas of the Day" window.

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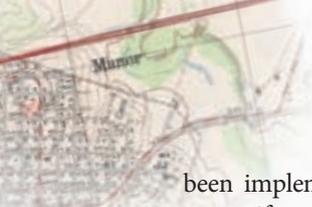
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been implemented, including an RSS feed to notify residents of new construction, maintenance and repair work, and adding an automatic debit system to pay utility bills online.

The auto debit billing idea is, according to Haisler, an ideal example of what Manor Labs makes possible.

“By making a few process changes and a few calls to the bank, we got it going,” he said. “It was just a quick idea that we’d never thought about. It was quick, efficient and didn’t cost us anything.”

The platform invites citizens and city officials to collaborate and develop ideas. It also gives citizens a clear look into the

decision-making process. Every time an idea advances or is rejected, the decision-makers detail what happened. Haisler likes the system because it engages citizens; the city likes it because it generates new ideas to improve Manors while living up to the call for transparency.

“Basically we’re crowdsourcing some of the thought processes. It’s creating new staff members who are volunteer-based,” Haisler said. “We’ve had a lot of good ideas come out of it. There have been a lot of things that have really made us think. The department heads love it because they’re getting ideas on how to make their departments more efficient, and because it’s visible to everyone in the world. [Everyone] can share their experience. They can give knowledge, and they can take away knowledge from the platform.”

### Getting in the Game

Certain elements turn modern Web sites into online destinations. One of the easiest and most effective ways to foster traffic to a site is giving users a reason to return. This is often accomplished by giving users the option to make comments or vote on things. If a user leaves a comment on a story on a newspaper’s Web site, for example, it’s likely he or she will return to see who responded to the input. This interactive component is what makes sites like Fark or Facebook so popular.

When designing Manor Labs, Haisler kept this in mind. He calls it adding a “game mechanic” — what keeps people engaged and prevents the site from stagnating. It also helps keep Web-surfing “no-goodniks” from polluting the site with spam or other offensive content.

“To get someone to go back to a platform, you make a game out of it and you allow them to be rewarded for participating,” Haisler explained. “Users are ranked and rewarded for their participation based on user votes on their content. So if they submit an idea and get 10 demotions, their rank is going to fall. That’s a way to see how much value that person brings to the system. It also keeps people who want to use it as a political soapbox from doing so. Basically there are repercussions for not adding value to the platform.”



Haisler stands in front of one of the many quick response bar codes in Manors, Texas.

“Everyone starts with a 50 rating. The more value they add to the system, the more promotions on their comments — anything you do on the platform — other people can rate that. If I comment on an idea and people think that comment was out of line, they can demote that comment and my ranking will go down as a result.”

Manor Labs has other clever incentives to keep people involved, including a leaderboard (that’s also published in the town’s newspaper) that features the most popular ideas, the wealthiest members (in terms of Innobucks) and members with the best reputation. Users can also invest their Innobucks in other people’s ideas, gambling on whether the idea will make it. If the investment is wise, the user reaps an Innobucks windfall. But if it fails, the investor loses everything.

Despite all the game mechanics and the Innobucks, at its heart, Manor Labs is an innovative application designed to enrich the lives of those who participate, while enriching the city.

“We’ve found it really helps to motivate people to get on board because they see that their ideas are at work,” Haisler said. “It’s a platform that is making ideas into solutions.”



## Crowdsourcing Basics

Much of what Manor Labs is accomplishing is being done through a process called crowdsourcing — tapping into the collective wisdom of the online universe, thanks to the Web. The idea is that if you ask enough people a question, you’re bound to get the right answer by default. Here’s a brief outline of how a typical crowdsourcing project works.

1. Organization has a problem.
2. Organization broadcasts problem online.
3. Online “crowd” is asked to give solutions.
4. Crowd submits solutions.
5. Crowd vets solutions.
6. Organization rewards winning solvers.
7. Organization owns winning solutions.
8. Organization profits.

Source: Wikipedia

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# Best Buys

One Florida city's purchasing department takes steps to improve the procurement process.



**A** government procurement department's job may seem simple in theory — buy the goods and services a jurisdiction needs — but anyone involved in the process knows it's much more complicated. When employees must repeatedly input duplicative information for each purchase, the task becomes laborious and error-prone.

St. Petersburg, Fla., dealt with that challenge in the Purchasing and Materials Management department, the city's office for buying supplies, services and construction. Department employees felt that procurement methods could be made more efficient.

"We had a purchasing system, and it would process your requisitions and create purchase orders. But then to pay for those products, you had to manually enter the same purchase orders into the finance system because the two did not talk to each other," said Christine West, the city's Oracle e-business solutions manager.

That method left the process vulnerable to human error. Someone could accidentally type information into the finance system differently than it had been typed into the purchasing system. "There was no integration to be able to reconcile the two systems," West said.

St. Petersburg wanted to eliminate paper processes and the errors that came with them, improve employees' ability to analyze department activity and streamline the requisition process. In 2005, West and her colleagues achieved these goals by automating purchasing procedures with Oracle Advanced Procurement, an applications suite.

"It allowed purchase requisitions and purchase orders to be directly integrated with the financial side," West said. "It goes through an automated approval path, and essentially, if everyone is sitting at their desk [when] the requisition comes through, we can have a purchase order out the door within 60 seconds."

The system generates an e-mail notification to whomever must approve the purchase, so the approval itself depends

on how fast the information is read and decided on.

"It's amazing in terms of the automation that we were able to put in place to streamline that entire process," she said.

## Smooth Moves

With the Oracle software modules employees now use, the purchasing department has reduced the requisition-to-purchase process from six days to about two days and requisitions have increased to about 25,000 per year. Employees have preloaded templates for contract renewals and use nearly 800 contracts annually, which eases the legal department's workload and saves taxpayers \$151,000 a year.

"The Oracle software radically improved the way we collect information and enables us to benchmark and do a lot of reporting that we didn't have before. The automated workflow was a huge bonus — where there's no manual signatures for the routine purchase orders that come through," said Barbara Grilli, the city's purchasing manager.

When technology isn't integrated, people don't get the time and money savings they want, said Wayne Bobby, Oracle's vice president of public-sector industry solutions.

"You'll slow the process down — cause it to be paper intensive," he said. "By establishing that ERP [enterprise resource planning] integration up front, that's where you start to see those kinds of efficiencies and savings."

The purchasing changes were part of an ERP deployment that made sweeping changes to the city's enterprisewide business functions. West manages the entire set of Oracle technology the city uses, and procurement and purchasing are just a few of the 26 modules deployed.

"We converted from 50-plus legacy systems into the e-business suite. Purchasing is just one of the several e-business modules I support," West said. "I oversee the devel-

### SYNOPSIS

St. Petersburg, Fla.'s automated purchasing environment saves the city time and money.

### TECHNOLOGY

Oracle Advanced Procurement software.

### CONTACT

Christine West, Oracle e-business solutions manager, St. Petersburg, Fla., Christine.west@stpete.org.



# Getting It Right

*Numerous challenges to public safety communication can be overcome with the right technologies.*

# Public Safety Communications: Big Issues, Simple Solution

*One cost-effective solution solves numerous problems, including interoperability, capacity and redundancy.*

**F**or public safety agencies, robust and flexible communications are absolutely critical. That's true for both emergencies and everyday operations. First responders and other personnel must be able to communicate at all times, regardless of location or circumstance. Public safety is too important to have people working in isolation.

There are many challenges to providing optimum communications, including budget constraints, staffing shortages and radio system coverage and capacity limits. Interoperability is another key issue. Most public safety agencies — whether police, fire or EMS — use private land mobile radio (LMR) systems, which often can't communicate across agencies or jurisdictions.

Without interoperable communications among agencies, emergency response is compromised and the public is at greater risk. But radios are expensive and aren't always dependable. And the public telephone network can be overwhelmed when it's needed most — during an emergency. All these issues can inhibit first responders and others from doing their jobs.



## One Answer

Fortunately there is an answer for all these challenges — and at a surprisingly low cost. Nextel handsets running on Sprint networks can make a big difference for public safety. They provide a parallel dispatch communications network, allowing public safety agencies to offload noncritical communications, resulting in reduced traffic on the primary LMR system.

The Nextel network can function as a day-to-day supplement to the primary network. Users carrying Nextel handsets can also be integrated with LMR networks, greatly expanding communications

capabilities both day-to-day and during emergencies or other events. Once integrated, the Nextel network serves as a seamless backup and extension to any LMR system.

With Nextel Direct Connect push-to-talk service, dispatchers can communicate with groups of Nextel users exactly the same as they do with groups of LMR users. And because the Nextel network is used daily, everyone is prepared to use it effectively when an emergency arises.

## Cost-Effective Optimization

The Sprint Nextel solution improves an organization's efficiency by keeping various communications from cluttering one channel and causing delays in operations. While first responders deal with the critical issues over the LMR system, personnel from public works, logistics, inspection, maintenance and other departments can use the parallel network from Sprint. The Sprint and primary networks can easily be linked when the need occurs.

LMR systems take a lot of time and money to build, but the Sprint system can be installed in just a few weeks, for a fraction of the cost — as little as \$2,000. Many organizations have done it for less than \$5,000. It all depends on the current system's size, complexity and requirements.

Sprint can be integrated into virtually any console system, including Motorola, Zetron, Avtec, Telex, Catalyst and Cisco. It can be integrated into any trunked or conventional LMR system, including analog, digital, 800 MHz, VHF or UHF. And Sprint seamlessly connects with IP-based dispatch solutions.

Because Sprint operates on its own dedicated, private network, it can provide nationwide roaming and unlimited capacity. So organizations using Sprint can eliminate boundaries, improve mobility and expand capacity, with a scalable network that supports both voice and data applications. That includes sophisticated applications such as GPS and video surveillance.

Because Nextel Direct Connect is a nationwide service, federal, state and local personnel can all use it to be patched into incident command during an event. This lets responders quickly get on the same page, which creates greater situational awareness and improves incident management — all while providing a separate, redundant communications system that doesn't depend on the public telephone network.

Interoperability, flexibility and reliability are key ingredients in a solution that streamlines and strengthens communications. It's a solution Sprint can provide in a cost-effective manner — for better public safety both now and in the future.



## Ready for Anything

*A small town is prepared for both emergencies and daily activities with a cost-effective improvement to its communication system.*

For a town with a population of only about 8,000, Wytheville, Va. has seen more than its share of newsworthy public safety events. A major snowstorm that shut down interstate highways and stranded hundreds of holiday travelers, a hostage situation at the local post office, and a roaming sniper in the Washington, D.C./Richmond area were all cause for public safety personnel to need dependable communication.

The Wytheville Department of Public Safety (WDPS) includes the Wytheville Police and Fire Departments, the E-911 Communication Center, Animal Control and Building Inspections.

A few years ago, WDPS upgraded its communication system in a cost-effective way, adding Sprint's Nextel network to its traditional land mobile radio (LMR) system. Once town personnel started using the Nextel handsets, they liked them so much they decided to connect them to the public safety dispatch console. Wytheville had one of the first Sprint Nextel dispatch integrations on the eastern seaboard.

About 60 percent of the town's public safety communication traffic is now over the Sprint Nextel network and handsets. "We're depending on our portable radios less and less. I haven't carried my portable radio in two years," said Albert Newberry, director of public safety for the town. The town's communication system now offers better coverage, better security and greater interoperability — essential capabilities when it comes to effectively handling emergency situations.

### Variety of Challenges

The snowstorm in November 2009 — on Thanksgiving weekend, one of the busiest travel times of the year — closed two interstate highways. Town personnel had to scramble to provide shelter for hundreds of stranded motorists. Strong communication played a vital role in responding to the challenge, allowing various departments and public safety agencies to stay in close communication and ensure those in need received the help they required.

**"We're depending on our portable radios less and less. I haven't carried my portable radio in two years."**

*Albert Newberry, director of public safety, Wytheville, Va.*

"We can get snowstorms that close the two interstates that run through town," said Newberry. "About 68,000 vehicles come through each day. If the interstates close, most of them are stuck and we have to open shelters. We count on our Nextel devices during times like that because the radios are jammed with other communications traffic. It's more efficient to use the Sprint Nextel network."

When someone took three people hostage in the post office, threatening to detonate explosives, secure communications between multiple public safety agencies again were critical.

The town works with numerous agencies, including the FBI, the Bureau of Alcohol, Tobacco, Firearms and Explosives, and the U.S. Marshals Service. "They all have Nextel devices, so we communicate that way too," said Newberry. "If they're in the area and they need some help or something, they'll Nextel us."

In the hostage situation, which made the national news, Newberry communicated with the county sheriff via their Nextel handsets. They could talk while staying off the main radio system — and had more secure communications at the same time.

During the sniper threat, Newberry traveled to Richmond, and needed to stay in touch with both the dispatch center in Wytheville and the town manager, who was in Virginia Beach at the time. The Sprint Nextel network made it easy for all parties to stay connected.

Newberry adds that it was relatively inexpensive to integrate the Sprint Nextel system with the dispatch console. That was just one more benefit from the town's use of Sprint Nextel. "We've been pleased with it," Newberry said. "If we didn't have it, all of my people would miss it. We rely heavily on Sprint Nextel."



## One Step Further

*A county sheriff's office streamlines communication and increases reliability and coverage by adding an iDEN network to its LMR system.*

The Montgomery County, Tenn., Sheriff's Office is dedicated to protecting the lives and property of the county's residents and visitors. Based in fast-growing Clarksville, near the Kentucky border, the Sheriff's Office proudly serves the county's 160,000 residents, many of whom live in smaller surrounding communities.

To do its job well — and to collaborate effectively with neighboring public safety agencies — the Sheriff's Office needs solid, dependable communications. But different agencies often have different radio systems, making it difficult to work together. In Montgomery County, hilly terrain is another obstacle to overcome, since it often impedes communication signals.

In the past, the Sheriff's Office relied mostly on its conventional land mobile radio (LMR) system, but that system didn't provide the countywide coverage and interoperability it needed. By adding the Sprint network and Nextel handsets, the Sheriff's Office complemented its primary LMR network in a very cost-effective way. Direct Connect from Sprint gives the county a push-to-talk (PTT) network that works alongside — and can be integrated into — the county's primary, 450 MHz trunked system. With the addition of Sprint communications, coverage now spans nearly 100 percent of the county.

With two systems, emergency communications among first responders should be available even if a natural disaster or other event destroys numerous cell towers. And Sprint will keep working even when the public switched telephone network is overwhelmed during an emergency.

### Multiple Enhancements

Through Sprint, the Sheriff's Office has iDEN (Integrated Digital Enhanced Network) technology, which gives the capabilities of cell phones, two-way radios, pagers and data/fax modems all on a single network — giving users access to huge amounts of information on just one mobile device.

"We couldn't duplicate the system ourselves," said Edgar Patterson, chief deputy sheriff in the Sheriff's Office. "It would take

us millions of dollars to create what we have with the iDEN service. To have a system that would do the same thing for the area we cover — about 545 square miles with very rough topography — we'd have to have several tower sites. And we'd have to maintain it all." Since Sprint takes care of the maintenance for the network, the Sheriff's Office has less to worry about, and lower costs.

"It's essential to have both systems," Patterson said. "You need to have one system that's yours — that you primarily use, that you control access to. And it's nice to have the secondary means of communication also." Patterson added that communications are more secure now too, since Direct Connect signals are harder to intercept than LMR signals.

With Nextel Dispatch Integration, Direct Connect is easy to integrate into the county's 16 Zetron dispatch consoles. "I could be in New York and need to talk to one of my cars out on the road, and I could simply call in to our central dispatch, and the dispatcher can connect me," said Patterson. "And when I push-to-talk, he hears me on his 450 MHz radio, and I hear him coming back on the Nextel system. It lets you connect with any system that you have programmed into your consoles for a truly interoperable solution."

While Montgomery County and six surrounding counties use the 450 MHz radio system, Clarksville has an 800 MHz system. With Nextel, the 450 MHz and 800 MHz systems can be connected, as can numerous other local entities, including the Fort Campbell military police and the state's emergency management system.

### A Creative Partner

Another of the county's interoperability projects involved Homeland Security District 7. Patterson is the chairman of the communications committee for the district, and was one of the driving forces behind the interoperability approach, which includes many jurisdictions sharing communication tools. "We know we have to work with each other," Patterson said. "We can't be like a big city and have everything for everybody. We have a range of jurisdictions to support from less than 10,000 in population to upwards of 160,000. Ensuring streamlined communications across all of these jurisdictions with differing systems is essential."

The Sheriff's Office also uses the Nextel system for its mobile data terminals (MDTs) in its patrol cars. In 1999, Patterson started an initiative to get the MDTs, but he couldn't find any carriers that could provide the communications infrastructure. Then he tried one more company. "Sprint said, 'We will get you a solution.' And they did," said Patterson. "When we could not get anyone else to help us out and get a data plan together, Sprint came through and worked with us to deliver a solution."

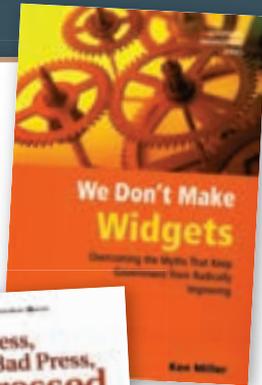
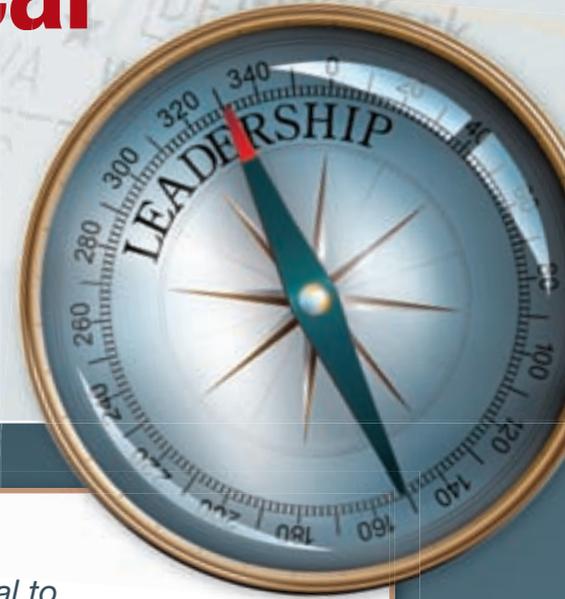
Since then, other companies have put in more services in Montgomery County, but Patterson said the county has stuck with Sprint, because the service has been good and the price has been right. "Now, although other carriers have push-to-talk capabilities, we still seem to have better luck with the Nextel push-to-talk than with anything else we've tried."



For additional information, visit [www.sprint.com/slg](http://www.sprint.com/slg)

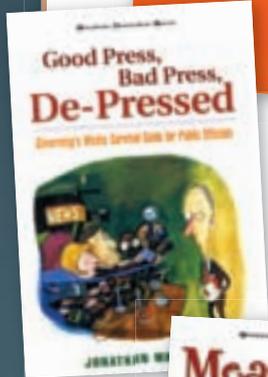
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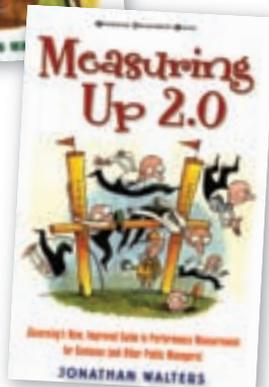
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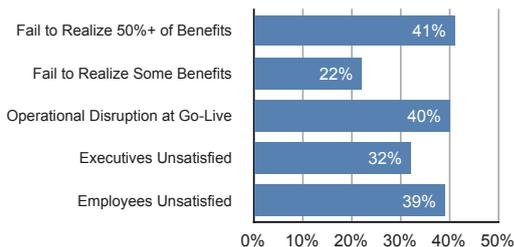
Network details and coverage maps at [vzw.com](http://vzw.com). All company names, trademarks, logos, and copyrights are property of their respective owners. © 2010 Verizon Wireless. GOVGTETHER510

opers and business analysts in the IT department, but the purchasing department itself is the true owner of the system.”

Bobby also thinks automated tools help the Purchasing and Materials Management department avoid extra costs that would arise when mistakes were made in the paper process.

“The more paper you have, the likelier that you may lose or misprocess paper,” he said. “And if you were to lose 2 percent of the invoices, then vendors are resubmitting invoices. Penalty charges may occur.”

## ERP Results



SOURCE: 2010 ERP REPORT, PANORAMA CONSULTING GROUP

An automated system can deliver other information to help users make intelligent buying decisions. Say someone is about to order paper for the copy machine on Thursday. The system could alert the purchaser that the office bought extra paper on Tuesday for another department.

“It’s in that intelligence layer where people get the improvements in their procurement processes,” Bobby said.

Grilli said she can mine the purchasing system for more information now than she could in the past.

“We can pull information out of the system that we’ve never even known before,” she said. “For instance, who is the top requisitioner by volume in the city, which departments are the top spenders by dollar amount, [and] a lot of small business reporting, such as how much we spend with our certified small businesses.”

## Tough Times for Many

West estimates that the full ERP deployment, which involved re-engineering all of the city’s back-end processes, including HR, accounts payable, accounts receivable and purchasing, cost about \$4.6 million and required a full project team onsite. The system went live in 2005 after a 12-month implementation.

According to West, then-Mayor Rick Baker was admittedly uneasy about making such drastic changes to technology that was behind so many vital functions.

“It’s a little bit of a scary proposition in your first year as mayor,” said West. “He came in and said, ‘I’m not sure I want to do this my first year.’ We worked through it, answered all his questions [and] made sure he was comfortable.”

Baker had reasons to be concerned. Recent research indicates that ERP deployments often fall short of user expectations. Panorama Consulting Group, which specializes in ERP consulting and research, released some alarming data in its 2010 ERP Report.

The company surveyed 1,600 respondents worldwide to discern common risks and drawbacks to ERP deployments. Although the respondents were from the private sector, the findings are eye-opening for the public sector. Fifty-seven percent of the Panorama respondents said ERP implementations take longer than expected, and 54 percent said they’re overbudget, with an average cost of \$6.2 million. As for the benefits of their ERP deployments, 41 percent said ERP implementations fail to realize at least 50 percent of the benefits; 40 percent said they had disruptions at the go-live dates; 32 percent said executives were unsatisfied with them; and 39 percent said employees were unsatisfied.

Such concerns are likely what gave Baker pause in St. Petersburg. He wanted the city to delay the project so everyone could prepare for the changes. Baker needed time to get used to it, do research and review the work that was done, West said.

There don’t appear to be any major setbacks in St. Petersburg’s case, but West has some advice for other jurisdictions that want to give it a try: Know what you’re in for and get ready for it.

“You can’t walk into it and say, ‘We’re going to put this new software system in, but we’re just going to continue doing business the way we always have,’ because then you’re only getting half the value,” she said. “If you’re just going to do business the way you always have, what difference does it make what software you have? You have to adapt to new processes, and you have to embrace best practices and what’s offered through the software.” 

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# Career Builder

With a looming shortage of workers educated in science, technology, engineering and math, educators seek new ways to steer kids toward technical fields.

In August 2009, ninth-graders entered the building across the street from the University of Cincinnati (UC) and opened their backpacks. Inside, they found an iPod, a digital camcorder, a tripod and microphones. Armed with these high-tech mobile tools, the students split into groups for a multimedia project.

At brand-new Hughes STEM High School, the days of learning solely by lectures and handouts are history. In this environment, students learn science, technology, engineering and math (STEM) by using their hands.

Hughes STEM High School was made possible by a partnership between UC and Cincinnati Public Schools, and emerged at a critical time: Education and government advocates have claimed for decades that a coming shortage of scientists and engineers will hamper U.S. innovation and economic development.

This partnership reflects a national trend of collaboration between K-12 and higher education to put more students on track for STEM careers. By collaborating, schools can connect across district lines, share resources and develop in-depth programs. These programs let students learn through hands-on activities, project-based assignments and apprenticeships. Leaders hope to shatter stereotypes about STEM fields, and prove to students that math and science careers are anything but boring.

## Enticing the Next Generation

In recent years, the push for qualified STEM professionals, touted as a key force in America's new economy, has increased. President Barack Obama has promised to train 100,000 more scientists and engineers in the next four years. Demands have loomed large for U.S. schools, which bear the bulk of responsibility for producing qualified STEM professionals.



President Obama's Race to the Top initiative is a \$4.35 billion fund that aims to provide competitive advantage to states that commit to a comprehensive strategy to improve STEM education.

But many students don't know enough about the industry to even consider pursuing STEM jobs, said Carla Johnson, director of the FUSION (Furthering Urban STEM Innovation, Outreach and New Research) Center at UC.

"They know it's something that pays well," she said. "But they couldn't tell you about the varying careers within engineering."

Schools like Hughes offer a solution to that problem. Hughes introduces students to the myriad career possibilities a STEM education can help them obtain, and also offers

high school/college enrollment programs, co-ops and internships. The school represents part of a statewide effort, through the Ohio STEM Learning Network, to create and connect innovative STEM schools and learning opportunities. Hughes also has a professional practice and demonstration laboratory operated by UC FUSION Center faculty.

After one year of intense planning, the school opened its doors to more than 300 ninth-grade students, an eclectic mix from about 50 different schools.



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As students advance, officials will add grades 10-12. With so many diverse minds under one roof, Principal Virginia Rhodes recognizes the collaborative parallels between the school and the STEM industry.

"In STEM, we need people who can relate to other people, and can work on tasks and problem-solve together," she said. "That means figuring out different roles, team leadership and learning how to listen to other people's ideas — all the things industry professionals need."

## Developing Opportunities

In upper northwestern New York, St. Lawrence County stretches across some 2,800 square miles, a rural expanse of villages, forests and farms. The fifth largest county east of the Mississippi River, St. Lawrence has 18 school districts, all overseen by the St. Lawrence-Lewis Board of Cooperative Educational Services (BOCES).

"In a community like this, where there is little real industry, we have to be able to develop new skills and opportunities for students," said Peter R. Turner, Clarkson

**"Getting them into a classroom early in their careers will increase their comfort level, help them reinforce science concepts and explain it in context."**

— **Claire Duggan**, Center for Applied Science and Mathematics for Innovation and Competitiveness

University's dean of arts and sciences and a professor of math and computer science.

In 2007, St. Lawrence-Lewis BOCES and Clarkson University created the St. Lawrence County STEM Partnership. With roots in a math program started in 2004, this partnership unites faculty and students from Clarkson with 200 local instructors to enhance STEM teaching and develop project-based learning models.

Funded by New York state in the No Child Left Behind program, the partnership includes one-day workshops and weeklong summer institutes. Leaders prepare students for competitions, such as MATHCOUNTS, Science Olympiad and FIRST Robotics, and also develop various STEM programs.

One such program is a roller coaster camp on Clarkson's campus, where high school students experiment with tracking devices, moving tires, remote control trucks and rockets to analyze acceleration, momentum and g-forces data. They also get to ride their own coaster designs in Clarkson's program—able virtual roller coaster that spins 360 degrees and simulates wind.

"Many of our kids have never been to a college campus or been around people who are educated on that level," said Mike Montgomery, an instructional specialist with St. Lawrence-Lewis BOCES. "It motivates them on what they can do and what they can become. It opens their eyes to the opportunities in STEM."

That same energy could be felt at STEMapalooza, an event held at the Colorado Convention Center in October 2009. Created by the University of Colorado at Denver's Center for Applied Science and Mathematics for Innovation and Competitiveness, STEMapalooza brought more than 100 exhibitors from around the state to the convention center to promote STEM in a free, two-day public event. About 5,500 people came to the first STEMapalooza in 2008 and the 2009 attendance spiked to nearly 10,000.

"Everywhere you looked, you saw people having fun while engaged in activities and conversations focused on STEM," said Sharon Unkart, managing director of the center. "Last year, there was a joke that the only kid who got lost was found at a college recruiting table."

## Joint Efforts

With Ohio and Colorado, Massachusetts stands at the forefront of the STEM movement, boasting a wide array of partnerships between K-12 schools and universities.

The Center for STEM Education, based in Boston, started its educational outreach work in the late 1980s as an outgrowth of various research projects that developed at Northeastern University. The center focuses on partnerships with local school districts, lending support wherever possible.

## A Gathering Storm?

Across the country, schools have formed partnerships to find solutions for impending employee shortfalls in math and science careers. Numerous high schools have linked with nearby colleges to create STEM camps, where young students experience STEM through interactive projects. With a five-year, \$1.25 million grant, Arizona State University is creating a cutting-edge institute to train middle school STEM teachers.

But will it be enough? Looking at the numbers, many analysts fear that the U.S. will lose its preeminence in STEM fields as emerging nations like China and India zoom ahead. In 2004, China graduated about 500,000 engineers compared to 200,000 in India and only

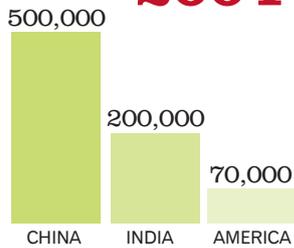
70,000 in America, according to a 2006 report by the National Academy of Sciences, National Academy of Engineering and Institute of Medicine called *Rising Above the Gathering Storm*. The report also noted that about one-third of U.S. students who plan to earn an engineering degree switch majors before graduating. It should be noted, however, that other studies question the validity of these numbers. A 2005

study by the Master in Engineering Management Program at Duke University found that "Varying, inconsistent reporting of problematic engineering graduation data has been used to fuel fears that America is losing its technological edge." When data is compared based on the quality of the engineering degrees, the Duke report found "the U.S. produces a highly significant number of engineers, computer scientists and information technology specialists, and remains competitive in global markets."

As part of its annual conference in October 2009, the Council of State Governments-WEST, which includes leaders from 13 Western legislatures, passed a resolution supporting STEM education, which stated that they "commit to deep and meaningful debate and call for a collaborative, local, state and national plan for action to accelerate, improve and inspire STEM education at all levels for all citizens."

On the other side, some analysts claim the STEM shortage is a myth, perpetuated by lobbyists and interests groups since the Sputnik era. A recent study by Rutgers and Georgetown university professors showed that the number of graduates in STEM fields has remained the same since the late 1990s. But the report, titled *Steady as She Goes? Three Generations of Students through the Science and Engineering Pipeline*, found that after leaving school, those top students decided to pursue careers in finance and consulting.

## Engineering Graduates in 2004



## NASA NEEDS ENGINEERS

A shortage of young scientists and engineers could hit NASA particularly hard. Almost half of the space agency's current work force consists of baby boomers, and by the end of fiscal 2010, more than 20 percent of the organization's workers will be eligible to retire, according to a 2008 presentation by Toni Dawsey, NASA's assistant administrator for human capital management.

The agency is now hiring more people from the Millennial generation to replace retirees. Over the next two fiscal years, NASA expects to hire 373 workers in aerospace engineering and 430 in general engineering.

NASA provides students and educators with a number of ways to learn about STEM careers, including summer research opportunities, team competitions, internships and cooperative education programs.

For example, the GK12 project, a National Science Foundation (NSF) program supporting STEM fellowships and training for graduate students, might work with a school district seeking content assistance for science

classrooms. The center secured NSF funding to connect with university academic departments and bring doctoral students to K-12 classrooms. The collaboration benefits young students and also helps graduate students who may want to teach get a better feel for the environment.

"Getting them into a classroom early in their careers will increase their comfort level, help them reinforce science concepts and explain it in context," said Claire Duggan, the center's director for programs and operations. "And it provides additional manpower in the school."

Citizen Schools Massachusetts, part of a national network that operates apprenticeship programs, connects Boston-area students with STEM field experts twice a week. Every spring, the organization offers science apprenticeships with Wentworth University, where students come together to race solar cars. In another program with Northeastern, students learn about computer programming.

"On one hand, it attracts students because they want to learn how to create video games," said Melissa Rouette, director

of civic engagement for Citizen Schools Massachusetts. "At the same time, it is so math-focused that students really have to be enhancing their math skills to be successful."

Across the country, as the push for more STEM professionals continues, partnerships between K-12 schools and colleges are expanding as a benefit for both sides: Colleges and universities can have a direct influence on their future undergraduates, and the younger set can experience STEM in a real-world context.

"It inspires students to think about careers that they may have never thought of before," Rouette said. "It provides them with role models who are studying and majoring or working in these fields. Then students say, 'Maybe I want to do this when I grow up.'" 

# 40%

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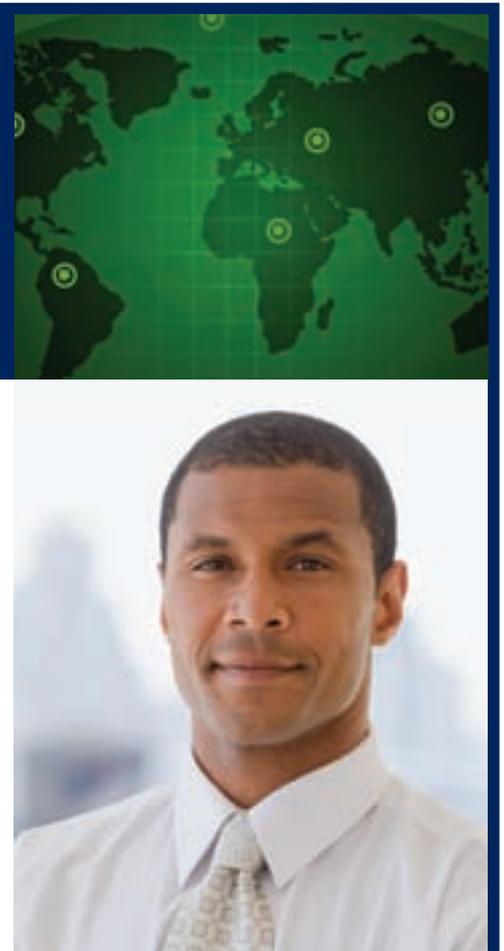
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# Joint Effort

Charlotte, N.C., and Mecklenburg County seek stimulus funds for a shared broadband network.

The grants and awards available in the American Recovery and Reinvestment Act are attractive, but competition is fierce.

In late January 2010, 1,400 stimulus grant applicants received rejection letters after they applied for funds during the first window for broadband financing. They got the bad news from the National Telecommunications and Information Administration (NTIA), an agency that is awarding some of the \$7.2 billion in stimulus funds reserved for broadband projects.

North Carolina applicants hope they'll be lucky in subsequent chances. The city of Charlotte and Mecklenburg County have united to create a comprehensive broadband network for their governments, and officials think stimulus money is an ideal way to help pay for it.

They've acted quickly. The jurisdictions sent their grant application during the second application window, from Feb. 16 to March 15. Those awards won't be given until sometime between June and September.

"We think we have a great story for our application, but I realize we'll be competing against a lot of other applications. So this is not a foregone conclusion that our idea is the best," said Dennis Baucom, director of Charlotte's Network Technology Services (NTS) Division.

Baucom oversees a robust city/county public radio system that's distributed across more than 10 sites and supports 17,000 subscriber radios. It's an analog Motorola wireless voice platform that serves not only departments in Charlotte and Mecklenburg County, but also those in neighboring jurisdictions.

## 30%

The minimum amount the National Telecommunications and Information Administration requires applicants to propose contributing in matching funds toward a project's cost.



ILLUSTRATION BY TOM MCKEITH

"It's worked out well for the city and county — and all the other participants — because all the towns in the community, as well as other entities, have used the system," said Jerry Pinkard, the director of Mecklenburg's Information Services and Technology Department. "It's also provided a level of service that we couldn't have otherwise provided."

But NTS wants to change the current network substantially. The department is implementing a digital overlay project to migrate the analog users to a digital system, and it wants to enhance the system so it can transmit wireless data at higher speeds.

"In the modern era, there's obviously a need for higher-bandwidth transactions, and we think a wireless data network will provide that," Pinkard said. "It's evolving toward a broadband network."

Pinkard, Baucom and their colleagues plan to get all this done no matter what, but they say stimulus dollars will help them accomplish their goals.

"We're applying for stimulus funding because it will speed up the process," Baucom said. "If we don't get stimulus money, then we fully expect to discuss funding it ourselves. It just means probably an additional two or three years before we could put the network in place."

## Making Plans

It won't be easy convincing the NTIA to give millions to a single project when there could be thousands of others trying to do the same. They could've filed a grant application during the first round funding window in early 2009, but weren't prepared.

"We talked about whether or not to try," Baucom said. "The time frame was just a little

### SYNOPSIS

Local governments unite to win federal money that will supercharge their broadband network improvement efforts.

### JURISDICTIONS

Charlotte and Mecklenburg County, N.C.

### CONTACT

Dennis Baucom, director, Network Technology Services, Charlotte, N.C., dbaucom@ci.charlotte.nc.us, 704/336-5349.

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short for all of us to get our legwork done, so we ignored the first round and said we'd try for the second round."

In summer 2009, representatives from various entities signed a consortium agreement. If all goes as planned, they'll represent a significant portion of the new broadband system's users and will also play roles in decision-making. Members include the city, county, higher education, public schools, public safety and the housing authority.

"I'm looking at those groups to be the core users who help set the parameters and how this thing's going to operate once we turn it on," Baucom said. "So they will make up the governing body at some point."

Round No. 2 parameters include crucial changes for broadband stimulus funding. Previously the NTIA and the Department of Agriculture's Rural Utilities Service (RUS) issued a joint Notice of Funding Availability (NOFA) to promote coordination between the two programs in round one. But this time, they require separate applications for each program. The NTIA will offer funds from the Broadband Technology Opportunities Program and the RUS will offer funds

from the Broadband Initiatives Program. The NTIA also requires applicants to contribute at least 30 percent in matching funds toward a project's proposed costs.

## High Hopes

The NTS applied for the NTIA program, and its project may qualify as a middle-mile endeavor that satisfies one or more of the NTIA's community-oriented priorities. According to the NOFA released on Jan. 22, middle mile refers to components of a new or upgraded community infrastructure project that provide broadband service from one or more centralized locations to access points. The NTS project is designed to do that more efficiently and also serve citizens who typically have less access to broadband.

"One thing we've found is that the segment of the population we're trying to get may be larger than we thought. That coincides with the reason for this money being available at all," Baucom said. "A significant segment of the population is now unemployed, and access to this kind of network at a reduced rate could go a long way to allowing them to

## WINDOWS OF OPPORTUNITY

In December 2009, \$182.7 million in stimulus funds were awarded to broadband projects in the first funding window. Here's a breakdown of how the money was divided:

**\$121.6 million** to projects building connections to communities with poor broadband access;

**\$51.4 million** to projects connecting hospitals, homes and schools to community broadband infrastructure;

**\$7.3 million** to public computing projects, expanding computer center capacity for public use in public places like libraries; and

**\$2.4 million** to projects promoting broadband adoption in populations where it's been underused.

do job searches and, in some cases, develop skills to get a new job."

Baucom said the NTS is looking at providing access for the unemployed at public access points, but has yet to determine where these will be or the rules of the arrangement. The department also seeks to provide broadband access to students, but it needs guidance from schools to iron out those details.

Although the payment specifics have yet to be fleshed out, all participating agencies will be subject to charges of some kind.

"One thing that I think early experiments with local government Wi-Fi [proved] was that free isn't always good because you become victims of your success," Pinkard said. "Everybody wants to jump on it, and you can't support the volume that you get out of that."

Too many users could slow down or overload the network, and if they're not paying, the NTS couldn't afford necessary upgrades.

The NTS will also seek private-sector partners to help build the network. Baucom hopes to solicit bidders to build the network or to build and manage it. That means the NTS is seeking assistance on two fronts — federal aid in the form of grant money, and private-sector contributions as well.

"Our goal right now is to get the network designed and built so that we own it," Baucom said, "and then find somebody in the private sector to do the operation and maintenance for us." **GT**

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# Cloud of Counties

Pueblo County, Colo., provides cloud-based applications to six other counties, improving service and reducing costs.



ILLUSTRATION BY TOM MCKEITH

**SYNOPSIS**

Pueblo County, Colo., generates revenue by providing cloud-based assessor and treasurer software to six other counties. Customers say the arrangement offers better service and bargain prices.

**AGENCIES**

Alamosa County Treasurer's Office, Saguache County Assessor's Office and Pueblo County.

**CONTACT**

Dan Mauro, 719/583-6039, Mauro@co.pueblo.co.us.

Given that buying hosted software services puts maintenance in the hands of a private company, it can be a slick way for small counties to operate. The problem is that private companies often don't fully understand government needs. A new cloud computing provider is on the scene with a unique fix in that area. It's another government.

In 2008, Pueblo County, Colo., began delivering cloud computing-style hosted software for assessors and treasurers in six other counties. The strategy either stabilized or reduced costs for all involved. The arrangement became a revenue generator for Pueblo County, which hired three employees for the sole purpose of

delivering this service to Conejos, Costilla, Alamosa, Rio Grande, Saguache and San Juan counties. They pay a fee to Pueblo County and insist customer satisfaction is higher than with the private vendors they used in the past.

**Coexisting in a Cloud**

Enabling all county participants to tap into the same software cloud may sound relatively simple, but it caused many complications for Dan Mauro, information systems director for Pueblo County. The hosted software, developed by the Pueblo County IT staff, interacted differently with each participant-

ing county's equipment. This meant Mauro's workers had to tweak it six different times. Doing just one of those conversions would normally take more than a year, Mauro said.

**\$3,235**

The amount of monthly savings for Saguache County from using the Pueblo County cloud.

His employees did six conversions in one year.

"It almost killed me," he said. "I was working 70- and 80-hour weeks most of the year."

Making the software interface with every county's IT infrastructure involved myriad little programming chores, Mauro explained. Also, he said if he had to do it over again, he would have spent more time addressing the concerns of various individuals from each county. When

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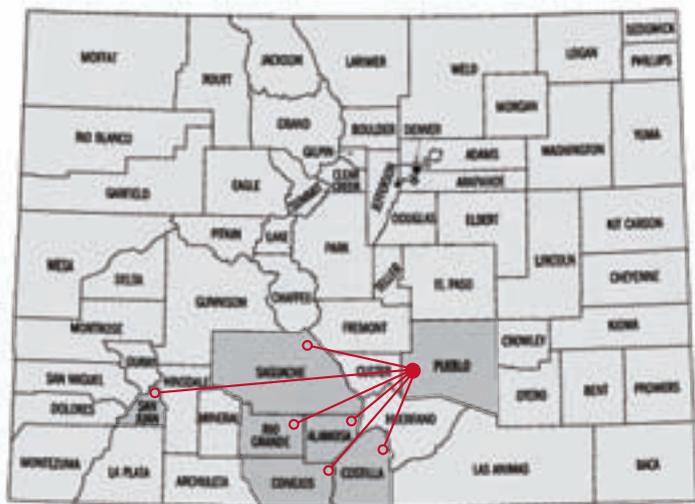
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Inspire the Next



**Pueblo County** in southern Colorado hosts software that six other Colorado counties pay a fee to use.

people who are necessary for such a conversion get nervous, their attitude can cause a ripple effect that slows the process, according to Mauro. He doesn't recommend local governments attempt the conversion without help from a vendor.

"We were just uniquely placed to do it because we do our own in-house development," Mauro said. "We write our own ERP [enterprise resource planning], finance, budget and payroll, and HR."

He said a local government could easily hire a vendor to set up a county-to-county cloud and train the hosting county how to operate it.

## Revenue Generator

Given that Pueblo County hosts the treasurer and assessor software services, people might wonder how it saves money. Shouldn't the county's costs increase if it has to pay more people to maintain an expanded



**Dan Mauro**, information systems director, Pueblo County, Colo.

infrastructure? Actually the fees charged to participating counties more than cover Pueblo County's costs for extra employees and infrastructure. By the end of 2010, the county expects net revenue of nearly \$200,000, which it will use toward its own software costs. Mauro said the arrangement was a bargain for all the participating counties, many of which would have faced price increases without it.

"They're paying close to what they were paying, only they're getting a newer, better product than if they were to upgrade with a third-party vendor," he said.

Mauro found a surprising affirmation of that claim from Lois Widhalm, treasurer of Alamosa County. She initially fought the multicounty cloud idea with the Board of Alamosa County Commissioners.

**"They're paying close to what they were paying, only they're getting a newer, better product than if they were to upgrade with a third-party vendor."**

— **Dan Mauro**, information systems director, Pueblo County

"I dug in my heels," Widhalm said. "I didn't really want to make a change because nothing was broken."

However, as her agency began deploying the software, she was struck by the flexibility of Pueblo County's software development.

"We're dealing with very sensitive people in terms of listening and understanding what we want," Widhalm said. "Just because it's done a certain way in Pueblo County, they're not forcing that on other counties."

The fact that the software is designed and hosted by a county makes the service especially well suited for other counties, in Widhalm's view.

"There is a commitment when you're a county government. It's a different entity. It's a different way of working and operating," she said. "They definitely have a feel and thorough understanding of what needs to be done."

The ability to stabilize costs by using Pueblo's treasurer software made deployment of it attractive, she said.

"Our third-party vendor was going to increase the cost of our product to the point that none of these small counties in this state could afford to [pay]," Widhalm explained. "We were absolutely panicked as to what we were going to do."

Also panicked was Saguache County, where its vendor for assessor software was poised to raise prices significantly, according to County Assessor Jackie Stephens. She was elated to learn that moving to Pueblo County's hosted cloud would slash monthly costs from \$6,525 to \$3,290.

"When you come from a small county like we do, that money really is everything," Stephens said.

## Superior Service

One of Widhalm's favorite features of Pueblo's hosted software is that it's Microsoft Windows-based. The Alamosa County

Treasurer's Office has only four employees, and using the office's old, non-Windows system was cumbersome.

"You would have to do 14 different key strokes to get where you needed to be to answer one question," Widhalm said. "With our shared service and Windows space, you can pull up whatever you need and just put a screen on top of another screen, answer your questions and get right back to where you were."

Both Widhalm and Stephens reported a striking improvement in responsiveness since they shifted to the Pueblo County cloud.

"Pueblo has been amazing," said Stephens. "If you send in a work order or call them, they're on it right away."

Widhalm's deployment is still being completed, but she has high expectations for it in the long term. "It's a constantly growing and improving product, and I couldn't be happier with it," she said.

**\$200,000**

The amount of revenue Pueblo County expects to generate from cloud services.

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## Gaga for Google

Cities ramp up the wackiness in hopes of currying Google's favor.

It's not Topeka, Kan., anymore. At least it wasn't for the month of March. Under a formal proclamation issued by Mayor Bill Bunten, the capital of the Sunflower State became known as Google, Kan. — “the capital city of fiber optics.”

Topeka's temporary moniker was perhaps the most offbeat publicity stunt among several U.S. cities that were angling for a spot in Google's new Fiber for Communities program. Announced in February, the Web search giant planned to pick one or more cities for its pilot project, offering an ultra-high speed, 1 GB per second network at a “competitive price.” The experiment had citizens salivating at the thought of Internet speeds 100 times faster than what's available in average American households.

The idea of Topeka's name change “came pretty much out of the blue,” Bunten said. “Everybody thought it was a fun idea, so we just went forward with it.”

Cities had until March 26 to express their interest in Google's fiber-optic broadband test. According to Google, the winning city or cities will be announced “some time this year.”

### Economic Development Wanted

Bunten wasn't fighting for Google's attention for his own benefit. He wants faster connections in Topeka to grow jobs and show younger generations it's more than “a good place to grow potatoes,” which is what the city's name means in indigenous languages.

Tech-savvy residents responded in a big way. A group on Facebook called Bring Google's Fiber Experiment to Topeka! quickly grew to 11,000 members.

“Imagine Topeka as a technology hotspot. A place where citizens, schools and businesses have unparalleled access to an Internet connection so powerful they're able to make



daily life more efficient, just by residing here,” reads the group's description. “Where, instead of waiting minutes or hours for a file to download or a video to load, it would occur in seconds, allowing technology to take us places we've never even imagined before. With Google's fiber experiment, this is all completely possible.”

Bunten, however, isn't the social networking type. “I don't really like to use Facebook or Twitter,” he said. “I'd rather just pick up the phone and talk to someone.”

Topeka's formal proclamation notes: “Google's commitment to innovation depends on everyone being comfortable sharing ideas and opinions.” The name-change idea certainly reflects that concept. Bunten said when he brought it up to the City Council meeting, no one objected.

For Topeka, a temporary name change to keep up with the times is nothing new. In the late 1990s, Bunten said, the city changed its name to “ToPikachu,” a shout-out to Pikachu, the yellow anime character from the Pokémon franchise. Bunten wasn't mayor at the time, but he still laughs at the story.

“Somebody said, ‘They renamed the city so it sounded like a sneeze,’” he said. “If you can't have fun with things, that's too bad.”

### A New Challenger Appears

When it comes to how far states will go for a supersonic fiber-optic network, it has become a battle of one-upmanship, but all in good fun. After Topeka's name change, officials in Duluth, Minn., fired back with a YouTube video spoof of a press conference, proclaiming that henceforth every firstborn male in the city will be named Google Fiber and every firstborn female Googlette Fiber.

“Please remember that just because Topeka was the first to make an obnoxious symbolic gesture to suck up to the good folks there at Google, doesn't mean that we can't suck up even more,” a fictional mayor says in the spoof. “Cast aside all dignity and self-respect because that is what it's going to take if we are going to beat the good folks of Topeka, Kan. — I mean, Google, Kan.”

Another video shows the real mayor of Duluth, Don Ness, leaping into icy Lake Superior. “I've laid down the gauntlet,” he boasted after emerging from the lake, a drenched white T-shirt clinging to his frame. “All right, you other mayors: You want Google Fiber, you jump in Lake Superior.”

At press time, Sarasota, Fla., had jumped into the mix. In a move from Topeka's playbook, the coastal city changed the name of its City Island to Google Island. Campaigners took shots at Topeka's boring landscape and Duluth's freezing weather in their YouTube video, which contrasts those dreary images with tropical vistas of Sarasota.

These examples, while easily dismissed as silly publicity stunts, underscore the importance of Google's project. And it may be that the Google decision-makers find themselves swayed by such antics. The company symbolically changed its name to “Topeka” on April Fools' Day. [GT](#)

#### SYNOPSIS

Cities creatively vie for a spot in Google's ultra high-speed broadband pilot.

#### JURISDICTIONS

Topeka, Kan.; Duluth, Minn.; and Sarasota, Fla.

#### CONTACT

Bill Bunten, mayor, Topeka, Kan., 785/368-3895, [bbunten@topeka.org](mailto:bbunten@topeka.org).

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# MI Face?

Critics call Michigan's new education portal a Facebook clone. Supporters say it will help more kids attend college.

**M**ichigan's Web-based platform that will help students and their families make college and career connections might initially sound like a Facebook knockoff.

But the state, which purchased the portal for \$1.1 million, insists that the Michigan College Access Portal (MiCAP) isn't a clone of any popular social media sites. In fact, Connect-

EDU, the Boston-based company building the portal, refuses to even call it a social network.

"It's a purpose network," said ConnectEDU President and CEO Craig Powell. "We leverage concepts of social networking, but for a defined purpose of education and career transitioning."

By integrating social networking strategies with personalized, secure data — like transcripts and test scores — education portals give students more control of their futures, proponents say.

In one example, Massachusetts' college and career Web portal, [yourplanforcollege.org](http://yourplanforcollege.org), is being tested at 20 pilot high schools. In Michigan, some critics consider the new portal a million-dollar mistake.

"One might wonder why the state is giving money to a Boston-based developer, especially when the point of the Web site is to keep students — and jobs — in Michigan," said an opinion piece on Michigan State University's news site. "In a state that has to watch every penny it dishes out, investing millions into what amounts to a Michigan-themed Facebook is a risky line on the budget."

But a new approach with some risk might be necessary, as the nation continues to stagger in the global race for innovation. State and local governments must find ways to keep kids on the right college and career track.

## An Online Transitioning Tool

These Web-based, one-stop shops give students and parents access to tools they



"We actually haven't had many students on it yet because it hasn't been as functional as we wanted it to be," he said.

To have these tools available to students gives them a better sense of their options, Bardwell said. He added that the rise of online applications has motivated students to apply to more schools. Proponents say these portals also reflect the Obama administration's ongoing focus on college and career readiness.

"Many of our states' governments have recognized the importance of moving more students to college or post-secondary degree programs to sustain economic growth," said former acting governor of Massachusetts Jane Swift, who joined ConnectEDU as senior vice president of government solutions and strategy.

While a purpose-based, customized Web portal for students isn't a complete solution, Swift said, the site helps "address important places where most students fail."

## The Million-Dollar Debate

The idea for MiCAP came after Gov. Jennifer Granholm's education adviser learned that North Carolina's portal had boosted college participation among low-income students, according to Terry Stanton, public information officer for the Michigan Department of Treasury. In 2008, Granholm designated the Treasury Department to administer the U.S. Department of Education's College Access Challenge Grant, which provides the state with more than \$4 million for two years — about a quarter of which was set aside for MiCAP.

When asked about the portal's return on investment, Stanton pointed to college graduates' earning potential.

"College graduates earn about a million dollars more than the average high school graduate," he said. "MiCAP will help make higher education more accessible for every student, something that is essential to building a strong economy and creating more jobs in Michigan." **GT**

### SYNOPSIS

Michigan's \$1.1 million College Access Portal uses social network strategies to help citizens apply for college.

### CONTACT

Liz Boyd, spokeswoman, Michigan Governor's Office, 517/335-6397.

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## Fiscal Distress

The recession is forcing governments to make drastic cuts to offset expenses. Here's a glance at what some states are doing to cope, according to the Pew Center on the States' 2010 report.



### CALIFORNIA:

**DMV offices are closed the first three Fridays of each month and courthouses are closed the third Wednesday of every month.**



### UTAH:

**implemented a four-day workweek to cut energy costs.**



### FLORIDA:

**cut travel budget and promoted teleconferences.**



### MASSACHUSETTS:

**merged six agencies into its Transportation Department and laid off staff who performed duplicative duties.**



### INDIANA:

**reassessed rental agreements and consolidated office space instead of renewing leases.**

## ROOM TONES

Cell phones could soon replace hotel key cards by using Crypto Acoustic Credentials — computer-generated tones — to unlock hotel room doors. The tone would be sent to a user's cell phone as an encrypted message. When played at the appropriate door, the tone disarms the locking system. The technology will be tested in Las Vegas hotels.

— FINANCETECHNEWS.COM



## Public vs. Private

**83%** of corporate and **92%** of federal government IT decision-makers said **information security** is their top concern when it comes to social media use in their organizations, according to CDW-G.

SOURCE: RIVERSIDECA.GOV

## Graffiti Guide

Riverside, Calif., uses geo-mapping technology to record graffiti incidents and locations. The system also helps the city quantify the cost associated with graffiti cleanup, so it can collect full restitution from taggers. Riverside spends more than \$1 million on graffiti cleanup annually. Here's a look at how the technology works:

**1** City workers take a picture of the graffiti using a GPS-enabled digital camera, which captures its precise location.



**2** The information is uploaded into the city's graffiti abatement database. The system creates an interactive GIS map showing graffiti locations and images.

**3** Information is made available to the police department for criminal investigation and the attorney general's office for prosecution.



Send spectrum ideas to managing editor Karen Stewartson kstewartson@govtech.com



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BY KAREN WILKINSON  
STAFF WRITER

## Delivery Confirmation

Franklin County, Ohio, uses address verification software to collect millions in unpaid taxes.

Mailing 435,000 property tax bills is a big enough task with a staff of eight people. But two years ago when Phyllis Roberts noticed nearly 14,000 returned bills, the Franklin County (Ohio) Treasurer's Office customer service supervisor knew the department could be more diligent.

"Ultimately it's our job to get that bill to the taxpayer," said Roberts, who blamed most of the returned mail on clerical errors and an aging real-estate computer system.

"We could type in 'Timbuktu' and it didn't care. If it was a new ZIP code, it wouldn't recognize it."

While the 14,000 outstanding bills represented only about 3 percent of the county's



total tax mailings, at an average of \$2,000 each, those unpaid bills added up to \$28 million in potential revenue for the county of more than 1 million residents, many living in Columbus.

Some bills belonged in the "dead pile" — constituted of residents who've moved — while others just simply didn't reach their destinations. "There are people who don't get a bill and think they don't owe anything," Roberts said. "Then they get a penalty and are very upset about it."

A cold call from Experian QAS — an address verification software provider — resulted in an implementation that helped shrink that stack of returned bills from 14,000 received in December 2008 to 2,000 during the first of two billing cycles of 2009. The QAS Pro software is "mapped directly into our real estate program and just pops up," which ensures the address is actually an address, Roberts said.

The software costs \$7,000 for an annual subscription, and it's installed on 20 county computers. Not much training is necessary and the software is easy to use for those who aren't computer savvy, she said.

The county plans to continue using QAS, said Roberts, who can't say enough positive words on its behalf. "I could go on the road and sell it for them," she joked. **GT**

### Address Verified

Aside from helping the Franklin County Treasurer's Office, QAS software is used by the county's Sheriff's and Auditor's offices.

A notable benefit for the Sheriff's Office is the ability to verify addresses on the spot when a sex offender registers with the county, said Phyllis Roberts, customer service supervisor for the Treasurer's Office. She said her office works directly with the Sheriff's Office to validate address information provided by offenders. "[Offenders] could give an address on a street corner" before the software was installed, she said.

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**NO**  
[48 PERCENT] **YES**  
[18 PERCENT]

Do you think it's difficult to find ways to be involved in government?

**NO**  
[30 PERCENT] **YES**  
[22 PERCENT]

Is community service an honorable thing to do?

**YES**  
[70 PERCENT] **NO**  
[6 PERCENT]

Is the idea of working in some form of public service appealing to you?

**YES**  
[33 PERCENT] **NO**  
[27 PERCENT]

Is running for office an honorable thing to do?

**YES**  
[35 PERCENT] **NO**  
[17 PERCENT]



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