

DIGITAL COUNTIES AND DIGITAL CITIES SURVEY

Best Practice Guide for Local Government

Produced by:

CENTER FOR
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INTRODUCTION

The e.Republic, Inc. local government program, *Digital Communities*, together with the Center for Digital Government and *Government Technology*, proudly present this inaugural Best Practice Guide for Local Government. It includes examples of innovative information and communications technology (ICT) systems and programs drawn from award-winning counties and cities across the United States.

For over a decade, the Center for Digital Government, together with partnering organizations, The National Association of Counties (NACo) and the National League of Cities (NLC), has administered a series of surveys about the use of digital technologies by local government to service citizens.

In their first iteration — launched in the mid 1990s — the surveys focused on a central question: What and how many services are being offered online?

The second iteration — launched in the first decade of the new century — expanded the view, asking questions about the architecture, infrastructure and policy framework in which digital technologies were being used.

Beginning with the 2010 cycle, the surveys shifted focus to the results achieved through the use of technology — both in terms of operating efficiencies and realizing strategic objectives. To be clear, they carried forward everything of value from the earlier approach but are now re-oriented around the outcomes of previous work.

The 2010 cycle is unlike any of the previous surveys because of seismic shifts in the economy and, by extension, in government budgets and service delivery — both in terms of demand and capacity to meet this demand. Many jurisdictions have made deep cuts across the board, or eliminated entire functions, or both, while seeking new means of support and collaboration. This is a time when relevance and adaptability of government (and by extension the public sector information technology community) is being subjected to a very real-world test — one that is being conducted in full public view, every day and with every encounter between citizens and their government. The urgent question is around how well, nimble and agile government is at adapting to the current environment with the future in sight — which is what a digital county or digital city would do.

Results and outcomes are at the heart of the many performance measurement and management programs used by public

agencies. What was good practice before has become a matter of survival in the wake of the fiscal crisis.

Public officials have been clear about what they see as the new central question behind the surveys: What have you done with the hand that you have been dealt? The question captures both (a) what they are working on currently, and (b) what they would like to learn about their peers across the country.

It is this interest in collaboration and the desire by local governments to share information and best practices with each other that has caused us to create this guide.

Survey reviewers have identified some of the best and most innovative programs and systems currently implemented in counties and cities and have assembled them in this document. The brief descriptions are intended to give readers an overview of what their peers are doing so they can determine if a similar approach might make sense in their community.

To that end, examples were selected from county and city responses within seven major categories of service delivery. Selections were made based on the innovative nature of the approach, its connection to a strategic policy agenda within the implementing jurisdiction, results generated, and the likelihood that the solution may be adaptable and replicable in other communities.

The Digital Counties and Digital Cities Surveys asked respondents to provide information on their activities in these seven major programmatic categories:

- IT Governance
- Public Safety, Emergency Management and Corrections
- Health, Social and Human Services
- Commerce, Labor and Taxation – Economic, Business, Community and Workforce Development
- Finance and Administration, Human Resources, Licensing and Permitting
- Energy, Environment, Natural Resources, Parks and Agriculture
- Citizen Engagement, Open Government and Online Service Delivery

This guide provides examples from each of those major categories — and in some cases from more specific subcategories. Whatever challenges you are encountering, it is likely you will find information in this guide to help answer your questions or point you to someone who may have already solved the problem and with whom you can collaborate.

CATEGORY 1: IT GOVERNANCE

The long-term sustainability of ICT in any entity requires that leadership realize the value of information services and the role that it can play in delivering services to the citizenry. This becomes even more apparent in tough financial times, when the demand for services expands and the resources to meet that demand become less plentiful. ICT has the unique capability — when properly managed — to help meet this dichotomy and satisfy these challenging demands.

How it accomplishes that mission — given the multitude of demands to provide services while keeping the enterprise moving forward with the pace of technology change — is no small task. In larger governmental bodies, it requires a sophisticated governance structure in order to be successful.

While successful governance structures vary widely depending on the degree of centralization or decentralization of the overall governmental entity, most large governments have implemented some form of a federation-type model. This allows for economies of scale through centralization, yet simultaneously delegates some of the IT responsibilities on a decentralized basis. For the central ICT function to be successful in this federated structure, it needs to follow a number of fairly basic rules.

1. Reporting Relationships – There needs to be an influential chief information officer (CIO) who leads the overall ICT function. This person must either report directly to the chief elected official (mayor, county executive, etc.), and/or have an ability to directly involve someone at that level in critical decision-making. The CIO must have the authority to direct and/or oversee all critical IT projects across the enterprise.

2. Strategic IT Plan – The main objective of the CIO must be to make sure that the priorities of the ICT organization are properly aligned with the strategic goals of the administration. There are a number of techniques that can be used in accomplishing this objective, but the best approach is to develop an overall IT strategic vision for the enterprise and to properly document it in the form of an overall IT strategic plan. The best plans are living documents and are updated on a regular basis.

3. Governance Committees – A formal structure of IT governance is established with active, engaged committees in place that consist of executive leaders at the city hall or county executive level, as well as senior executive representatives of critical operating agencies.

4. Repeatable Practices – Various proven practices need to be in place that will demonstrate repeatable results for IT operations and program management. Enterprise architecture techniques and rigid funding decision models are also important to establish the proper management disciplines.

Six entities demonstrated best-in-class leadership in this category. Following are descriptions of their successful practices.



Hennepin County, Minn.

In 2010, the Hennepin County Board and CIO began implementing several changes to the structure of the enterprise IT organization. Changes to the IT organization and the maturity of the new governance structure will continue into next year. The new organizational framework is called the Hennepin County Federated Model. The core of the federated model is an expanded and improved governance structure that provides county leaders with a predictable process for approving projects to move to the Hennepin County Board for approval.

Responsibilities for existing groups have been revised through updated charters, while new groups — like the Technology Advisory Committee — have been established. This year, the Hennepin County Technology Advisory Committee was established to provide a vehicle for strategic discussion regarding the role of business-driven technology throughout the county. Participants in the strategic discussions include the county board, county administration, the CIO and CIOs from local private industry.

The Information Technology Governance Board (ITGB) consists of the CIO, county administration and business directors from throughout the county. They align information technology investments with strategic business objectives to ensure that funds for IT are being directed toward enterprise priorities. The Technology Steering Committee consists of the CIO and managers from distributed IT groups throughout the county. The group makes recommendations to the ITGB regarding IT spend, resource allocation, project priorities, portfolio management, shared services delivery and other related IT issues. The Architecture Review Board (ARB) is the governance function within the Enterprise Architecture

Operating Unit. The ARB is a critical function for the county that facilitates adherence to the enterprise architecture IT strategy and standards. The Information Technology Advisory Council is a forum for IT managers and IT supervisors throughout Hennepin County to communicate and collaborate with each other regarding technology issues throughout the county.



King County, Wash.

King County reorganized IT in the executive branch to report to the CIO in 2009, providing a single point of accountability to

enable improvements in standards, reduce duplication of efforts and leverage economies of scale.

The county has also established a benefit realization process for all county projects to capture the benefits related to an IT investment. The county has a funding process for IT:

- Conceptual Review – requiring CIO and budget office approval
- Budget Submittal – requiring executive and council approval
- Funding Releases – requiring project review board approval

In 2010, in addition to providing needed oversight on project requests, the CIO also developed an IT budget advisory to guide all agencies in how to reduce IT expenses. The county has established three IT governance committees focused on technology strategy, business impacts and infrastructure. The committees are composed of appropriate representatives from all county agencies and provide advice to the executive officer and the CIO. Through these committees, the county developed its third strategic technology plan last year, which guides the county in its IT investments and aligns technology with business needs.

Information about the IT reorganization benefits realization and IT budget advisory can be found at www.kingcounty.gov/business/oirm/governance/strategicadvisorycouncil/meetings/IT_Reorg_Materials_SAC.aspx.

Information about the strategic technology plan can be found at www.kingcounty.gov/business/oirm/governance/strategicservices/strategicreports.aspx.



Montgomery County, Md.

In 2008, Montgomery County made specific commitments to financial systems overhauls through the implementation of an ERP system, but also became the first documented organization to attempt — in parallel — a 311 customer contact initiative. County leadership realized that the investment in technology was crucial given the age of the current system and the risk that created as it tried to support the county's financial and human resource systems. For the first time, inter-departmental dependencies and governance were required to move forward in the implementation of enterprise solutions.

As a result, steering committee models had to evolve to support the broader, cross-agency initiative approval processes; and even more important, a long-term organization plan was needed

COUNTY LEADERSHIP REALIZED THAT THE INVESTMENT IN TECHNOLOGY WAS CRUCIAL GIVEN THE AGE OF THE CURRENT SYSTEM AND THE RISK THAT CREATED AS IT TRIED TO SUPPORT THE COUNTY'S FINANCIAL AND HUMAN RESOURCE SYSTEMS.

to support these enterprise initiatives. The organization umbrella will encompass all enterprise-level projects, including ERP, MC311, MCtime, public safety modernization and HHS enterprise projects. This organization — which would manage the business analytic, governance and organizational aspect of changes on an enterprise project level — will review, analyze and prioritize business needs from a collaborative view.

Collaborative management efforts — including overall sponsorship by the county's chief administration officer — enterprise direction, and cross-departmental prioritizations have become the focus of technology modernization program decisions. Through CountyStat, the county's transparency-in-reporting process, management and county residents can view and closely monitor performance.



Oakland County, Mich.

Oakland County is a best practice model of implementing successful repetitive processes. Oakland County's Project

Management Office (PMO) is responsible for establishing and maintaining methods, standards and guidelines for the county's project management processes, including a 24-month IT master plan prepared in cooperation with IT leadership groups. Leadership groups are comprised of all county departments and agencies that monitor, control, prioritize and oversee all technology projects. The master plan provides an overview of the available IT resources and their allocation to various county customers and approved projects. It also provides a status of the progress of this plan and an explanation of any extreme positive or negative variance from the original plan.

Oakland County also uses the Information Technology Infrastructure Library (ITIL) methodology, framework and standards to manage service delivery and support. Oakland County has implemented ITIL components such as service support, service management, incident management and problem management. Thus far, ITIL process implementation has helped the county operate more effectively, deliver stronger services to the community and better align IT with the county's business and economic development goals. This alignment has enabled the county to reduce operational costs while launching new economic development initiatives.

Oakland County's award-winning Project Management Office has a proven track record of success, and serves as a model for organizations looking to improve productivity, efficiency and return on investments. Complete details can be viewed online at www.oakgov.com/pmo.

During the next 12 to 24 months, a major project-planning initiative will focus on the architecture of a more evolved government cloud, including the creation of a sustainable funding and governance model. This will enable Oakland County to expand its shared services and hosted applications to other governments. Through this enhanced computing cloud, other governments will be able to consume technology services provided by Oakland County at significantly lower costs than alternative options.



Orange County, Calif.

In Orange County, through a strategic planning process, the CIO led the design of a county-wide federated governance

model which allows IT to partner with county executives and business leaders to ensure that there is appropriate oversight and that technology needs are met. To date, the county has implemented the following:

Technology Council - The Technology Council provides oversight and directs the various enterprise architecture groups that were established to address county-wide technology standards and guidelines. It also reviews implementation status of ongoing county-wide IT initiatives.

Business, Application, Data & Information and Security Architecture Groups - These architecture groups were formed with representation from central IT and each county agency IT department. Each group established its charters in line with the county IT governance model. The goals of each of these groups are to establish county-wide standards; best practices and provide forums for sharing of information, applications and best practices within each IT discipline. The overall goal is to leverage cross-county technical expertise and cost-saving opportunities.

IT Project Review Board - The IT Project Review Board was established with representation from both county business executives and technologists. The board reviews IT project business cases and rates them based on pre-determined criteria; and prioritizes projects and recommends project initiatives to the CIO and CEO that should be funded. This year, project rating criterion was more stringent due to the current budget challenges. Only projects that were needed to support critical technical infrastructure (due to obsolescence), had an 18-month projected ROI, or were mandated were approved for funding.

IT Business Council - The IT Business Council reviews IT policy recommendations. The IT Business Council held its first meeting in January 2009 to review/approve a new county-wide security policy recommended by the technology council. A review of the recommended technology projects for FY 2009-10 and FY

2010-11 funding was provided to the council. In January 2010, the social media policy was also presented.



San Diego County, Calif.

In San Diego County, all county IT projects require a business case approved via the county's IT governance model, and regular project reviews are in place to measure performance against the business cases and project plans. Portfolio rationalization helps prioritize IT investments, and an annual IT budgeting cycle (leveraging asset, performance and financial data provided via the county's IT outsourcing agreement) is synchronized with the county's overall budgeting cycle.

The strategy for implementing these policies is well documented and addressed in the county's IT strategic plan. View San Diego County's IT strategic plan at www.sdcounty.ca.gov/dmpr/gfx/IT_Strategic_Plan/.

CATEGORY 2: PUBLIC SAFETY, EMERGENCY MANAGEMENT AND CORRECTIONS

The overall criteria for identifying the best-in-class practices in the category of public safety, emergency management and corrections is best stated by summarizing NACo's public safety philosophy that, "It is only through a county partnership with other levels of government in the American system of federalism that a full-scale comprehensive approach may be taken to crime and public safety problems." This point is further emphasized by the mayor of Louisville, Ky., the 2nd-highest-ranked-city in the Center for Digital Government's 2010 Digital Cities Survey, who stated to his constituents that, "Nothing was more important to our new city of Louisville than to make certain our emergency responders were linked together so they could work together as an effective team to help citizens in times of need."

Integrating the tools of justice and law enforcement is no easy task. Just ask any of the thousands of IT professionals who work at it every day across the country. In a field where response and dispatch times are measured in seconds, the availability and performance of the systems and people that support them are critical. Law enforcement, emergency management and firefighting are very tactical functions, yet the information technology that is required — to better manage and administer, reduce crime, and make our neighborhoods safer — requires a high level of strategic focus.

Every one of the cities and counties that ranked in the top 10 in the largest population categories of the Center's Digital Surveys (250,000 people and above for cities, and 500,000 and above for counties) are featured in this section for undertaking a best-in-class use of some component of information or communications technology for improving public safety, emergency management or corrections. The examples are varied and include a number of truly innovative solutions.

Integrated Justice Networks

Today's advanced communications technologies — and more recently, Software-as-a-Service (SaaS) architectures — are allowing for the integration of law enforcement and justice networks across the country. By tying together police departments, sheriff's offices, district attorneys, correctional facilities, probationary officers, courts and other components of the justice system, we are seeing a movement away from paper-based processes. Governments are implementing much more efficient processes for

handling arraignments, scheduling appearances, reducing duplicate administrative functions and sharing information.

Four localities stand out as having moved aggressively with the integration of technology in this area:

- Bexar County, Texas
- Montgomery County, Md.
- Palm Beach County, Fla.
- Sacramento County, Calif.



Bexar County, Texas

Bexar County's Criminal Integrated Justice System (CIJS) — a major initiative within the Bexar County IT department — seeks to modernize and fully integrate the complex, diverse legacy systems that are in place today. CIJS will use state-of-the-art technologies, workflows and data sharing, thus eliminating double data entries across the numerous current systems. The new CIJS will automate historically manual and paper-based procedures and allow for analytic assessments of case data to assist in identifying bottlenecks and less-than-optimal processes. Due to these optimizations, it is estimated that CIJS will reduce initial bonding processes by over 20 percent and case adjudication times by 25 to 30 percent, thus reducing jail populations and streamlining criminal justice processes.



Montgomery County, Md.

Montgomery County created an Integrated Justice Information System (IJIS) that integrates data from several law enforcement and criminal justice data sources, enabling personnel to retrieve information for investigations and processing without having to access several systems. One module of IJIS that recently became operational is the state attorney's office case management system, which helped meet new legislative mandates and increased productivity for the office. IJIS was one part of a multi-part strategic IT plan that included a public safety system modernization plan, a

communication interoperability plan, a computer-aided dispatch road map and a public safety enterprise architecture. These plans are documented in the first three official papers published on the Montgomery County Portal located at <http://montgomerycountymd.gov/index.asp>, under the Public Safety Enterprise Strategies link.



Palm Beach County, Fla.

Palm Beach County implemented the Law Enforcement Exchange (LEX) System which connects multiple law enforcement data sources, thus enabling officers to query crime information stored in these databases. The goal of the LEX organization is, "To establish an efficient and effective technology-enabled law enforcement enterprise system for enhancing the safety, security and quality of law enforcement for personnel and citizens..." The LEX system connects disparate software and database systems maintained at various locations in order to easily access data on a person, an activity (e.g., burglary), property or vehicle. With automated LEX searches, hundreds of hours of staff time are saved. Access to the system is strictly limited to law enforcement. There are currently 10 local agencies and 3 state agencies contributing and sharing data to the system. Police chiefs, the state attorney and the sheriff are all working together to develop the governance structure, procedures and funding for the ongoing maintenance and sustainability of the system. Discussions are being held to consider how the LEX system might be expanded to become the regional law enforcement data sharing solution for southeast Florida.

THE SHERIFF'S DEPARTMENT — IN COLLABORATION WITH 13 COUNTIES, MORE THAN 20 CITY POLICE DEPARTMENTS, AND OTHER STATE AND FEDERAL AGENCIES — HAS JOINED THIS PROJECT TO SHARE CRIMINAL JUSTICE DATA, REDUCE REDUNDANCIES, POOL RESOURCES AND SHARE EXPENSES.



Sacramento County, Calif.

Sacramento County has one of the most integrated Criminal Justice Information Systems (CJIS) in the state of California, however, the system is aging and Sacramento County has started an initiative to replace CJIS. Using Java.Net technology, the National Information Exchange Model (NIEM) and Web services, Sacramento County has successfully completed the state's first encrypted California Law Enforcement Tracking System (iCLETS) to offer real-time interface to departmental case management systems. The county also initiated a new project to replace the CJIS warrants repository. In addition, the Sacramento County Sheriff's Department has taken the lead in the region to implement COPLINK. COPLINK is a tactical, line-level solution to the problem of inaccessible or irretrievable information as a result of disparate law enforcement information systems that lack a common platform. The sheriff's department — in collaboration with 13 counties, more than 20 city police departments, and other state and federal agencies — will be able to exchange criminal justice data, reduce redundancies, pool resources and share expenses.

Law Enforcement

With public safety/law enforcement at the top of most local governments' priorities — and with a large number of new, innovative technologies to choose from — the best case examples of ICT usage are numerous and quite varied. In order to focus attention on those efforts that are most noteworthy, we have organized the best case examples into the following categories:

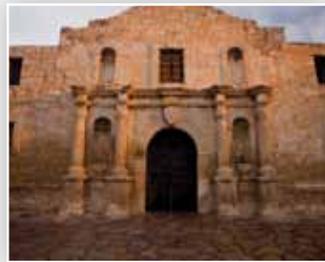
- Overall ICT Strategic Planning
- Mobile Applications
- GPS/AVL Implementations
- Records Management Systems
- Real-Time Crime Warehouses
- Other Innovative Solutions

Overall ICT Strategic Planning

While many IT initiatives in law enforcement are often one-off efforts funded by federal or other grant money — limiting the



technology to a specific purpose — more and more counties and cities are stepping back and creating an overall public safety/law enforcement ICT strategic plan. Standing out for its work in this area — in addition to aforementioned Montgomery County, Md. — is the city of San Antonio, Texas.



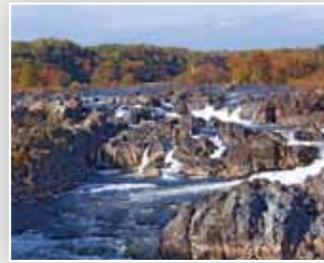
San Antonio, Texas

San Antonio completed its strategic plan for public safety in 2009, which addressed the police and fire departments and

the Emergency Operations Center. The plan detailed the acquisition of multiple new technologies over the course of the next three years and how those technologies needed to be effectively integrated into the organizations. The plan also paid for new public safety facilities, including a combined public safety headquarters facility and a 911 communications center. Based upon this plan, work has been completed or is in progress to substantially upgrade the capabilities of these organizations. As a result of a recently completed high-profile management assessment of the San Antonio Police Department, the chief of police is in the process of implementing a number of recommendations for improvement, including an overall policing strategic plan that will adopt an “intelligence-led” policing strategy. ICT techniques will be a critical component of this strategy, and the strategy will be aimed at greatly enhancing officer safety and more effectively supporting crime-fighting and problem-solving efforts of the SAPD.

Mobile Applications

Mobile applications are at the forefront of supporting the field forces that are at the heart of community policing activities across the country. Keeping the police force in neighborhoods by allowing them to complete paperwork and other administrative functions in the field, rather than returning to the office, is very important. Our best-in-class cities and counties understand this concept and are well on their way to implementing it.



Fairfax County, Va.

The Fairfax County Police Department is delivering its new records management system to mobile units via remote terminal

software and broadband technologies, thus enabling officers to submit electronic reports while they are still in the field. These reports, which previously had to be copied and delivered to central records for data entry, are now being processed much more efficiently.



Louisville, Ky.

The Louisville Police Department is gaining operational and administrative efficiencies through the use of two new remote applications:

1. The iLEADS technology project — police officers are using handheld scanners in the field that reduce the time it takes to scan a driver’s license, enter a report and do so with fewer errors.
2. The iMobile application — runs on mobile data terminals in police vehicles and allows officers to display CAD maps, incident locations and call details onscreen to review en route.



Plano, Texas

Plano implemented a city-wide Wi-Fi mesh network, and although the amount of technology available to the officer in the field is potentially becoming

overwhelming, it is allowing them to perform services at a faster pace than previously possible. *Forbes* magazine named Plano as the safest large city in the U.S. due to its low crime and traffic fatality rates. This is due in part to the visibility of the officers in

the field. In addition to the Wi-Fi system, the new technologies include automated field reporting (AFR), portals for management reviews of operations and crime analysis reporting.



Prince George's County, Md.

The police department and the courts are piloting an electronic citation application, which will allow officers to scan operators' licenses and populate driver information on citations. This will electronically generate a paper citation, while simultaneously transmitting the citation data to the courts and state police. This system is expected to reduce data entry errors and the average time duration of traffic stops. The mobile data computer (MDC) requirements are being met by the use of a private wireless network. Through this effort, the police, fire and sheriff now have access in their vehicles to the Internet, various data sources and services (such as the motor vehicles administration), e-Tickets, county Web mail, and computer-aided dispatch information.

GPS/AVL Implementations

In addition to mobile applications, the expanded use of wireless systems is allowing global positioning system (GPS) and automatic vehicle location (AVL) technologies to be deployed on police and other vehicles. These technologies, while initially causing officers in the field some concern that they are being closely watched, actually have significant benefits — as our two best-in-class localities demonstrate.



Westchester County, N.Y.

The electronic ticket application, piloted for the Yonkers Police Department, allows officers to scan a motorist's license and registration, therefore avoiding manual data entry of information to generate a traffic ticket or incident report in the police car. A GPS Gate Police AVL car application

is used to track police cars on a map with real-time status information. Historical information is readily available in the user interface and reports can be created for further analysis. In addition to allowing faster dispatch, e-mail notifications can be sent for events that require attention, such as vehicle theft and excessive idling. Metrics were established to monitor the system's performance, which to date has been excellent.



Winston-Salem, N.C.

Winston-Salem has also installed an AVL system in its patrol cars and is having similar results. The AVL solution is integrated with CAD software, allowing the closest officer to respond to an event. The AVL implementation is improving response time, decision-making and officer safety. Vehicles are tracked continuously and can be visually analyzed in ways not otherwise possible. Actual vehicle routes are stored and then analyzed to improve future responses. Cameras are also installed in all police vehicles, and they automatically begin recording when certain criteria is met. A large data storage system enables the videos to be maintained as needed and searched based on a range of criteria. The video documentation has been used to make convictions for which there would otherwise have not been sufficient proof. The videos may also be used as a tool for officer training or for evidence on behalf of officers who have been accused of inappropriate behavior.

Records Management Systems

Critically important at the center of any law enforcement agency is its records management system (RMS). Many of these systems are outdated and do not utilize today's modern system features, such as remote data entry or user-friendly interfaces. Two localities have made great progress in updating their records management systems. Fairfax County, Va. — mentioned earlier — is one, and San Antonio, Texas, is the other.



San Antonio, Texas

In addition to deploying the new RMS, San Antonio is also deploying an automated field reporting (AFR) system for both

the police and fire departments. These systems will also be leveraged by some of the other jurisdictions within the San Antonio region. The new systems will significantly expand the availability of information and will dramatically improve crime reporting, crime and intelligence analysis, and the implementation of a new intelligence-led policing strategy (ILPS) within the San Antonio Police Department (SAPD). Examples of future anticipated benefits include:

- handwritten reporting being replaced by a fully automated crime and booking system utilizing mobile computers in the police cars;
- an expanded amount and quality of information available in the future to support improved strategic and tactical planning;
- enhanced ability to interface with multiple data, video and voice systems that can be available to improve officer safety, crime fighting and problem solving; and
- automated internal processes, such as annual uniform crime reporting to the FBI and internal quality control audits.

Real-Time Crime Warehouses

Data warehouse technology and business intelligence software are becoming common tools in law enforcement’s battle against crime and terrorism. Not only are these tools important to help apprehend criminals based on information about perpetrators from prior crimes that is stored in the database, but data trending techniques are also used to avert crime before it occurs. Information from 311 systems about minor incidents such as noise complaints can also be stored and matched with 911 data and used to help avoid greater problems such as fights, shootings or other crimes. Following are examples of some of the more advanced uses of this technology.



Boston, Mass.

Boston’s real-time crime center is used extensively, and is responsible for monitoring ongoing incidents and relaying relevant information to police field units.



Chicago, Ill.

The Chicago Police Department’s (CPD) Citizen and Law Enforcement Analysis and Reporting System (CLEAR) has allowed

CPD to streamline many processes while also giving officers in the field a powerful tool to assist in apprehending suspects. It’s currently being used throughout Illinois and is recognized by the U.S. Justice Department as a best practice. In 2010, CPD applied for, and received, a grant that will allow CPD and regional partners to leverage CLEAR to share data across jurisdictional borders to better prevent, prepare for and respond to criminal activity, major incidents, national disasters and terrorist attacks. The U.S. Department of Justice, Office of Community Oriented Policing Services, recognized the potential of the CLEAR system and provided close to \$6 million to be matched by nearly \$2 million in city funding, to enhance and expand the CLEAR system to create a regional information sharing system called R-CLEAR (Regional CLEAR). This expansion will allow police departments from northwest Indiana and southern Wisconsin to share data with over 17,000 law enforcement users from over 400 local, state and federal criminal justice agencies to identify criminals and solve crimes.



Salt Lake City, Utah

The newly commissioned Salt Lake Information Center (SLIC) is the city’s fusion center. Fusion centers across the nation focus on

gathering intelligence to enable law enforcement to become predictive rather than reactive. The goal is to move law enforcement into the mode of preventing criminal activity rather than arresting those responsible after the fact — thus creating a safer community. The SLIC uses different types of technology, including data warehousing, data harvesting and analytical technologies. By integrating the police records system with the city's GIS system and applying analytical tools, the SLIC is able to map trends, patterns and make projections as to what type of activity is likely to occur in any given place.

Other Innovative Law Enforcement Solutions

The types of innovative ICT solutions that are being used in today's law enforcement agencies appear to be endless. In addition to those already mentioned, Chicago and Boston are both making use of sophisticated gunshot detection technology. Gunshot detection is an acoustical technology that helps detect and locate gunfire. On average, notifications arrive 1 to 2 minutes prior to 911 calls, and sometimes in the absence of a call. The technology helps improve response time, identify hotspot areas, recover evidence and locate individuals in possession of guns.

Video surveillance is becoming more sophisticated in a number of cities around the country. Perhaps most innovative is how it is now being used in New York City. Working in partnership with private entities in both Lower and Midtown Manhattan, the NYPD has created networks of thousands of video cameras to provide real-time video surveillance. Taking this one step forward, they have networked these cameras back to a central location where they can monitor the network using advanced video analytic software. When fully configured, the analytics can alert police in real time to a variety of potentially suspicious objects or activities, including unattended parcels, movement in restricted areas and unusual loitering. The technology enables investigators to search multiple cameras simultaneously to retrieve incidents of concern. The project will continue to expand to include 3,000 cameras in total. More information on the initiative may be found at <http://bit.ly/dzo9HU>.

Emergency Communications, 911 Computer-Aided Dispatch (CAD) Systems

The lifeblood of police, fire and emergency medical operations is the 911 call center, the associated CAD system(s) and the

emergency communications radio networks. Integrating these systems across the diverse agencies that make up public safety or across multiple jurisdictions is, to say the least, a difficult and challenging project. Couple this with evolving technology that includes electronic dispatch, GIS and GPS/AVL technologies, integrated alarm and gunshot detection systems, cellular-based technologies — including mobile phones, text-based services and broadband capabilities — and these new systems become a marvel of the latest ICT technologies, not to mention a very sophisticated business operation.

A number of localities have implemented new e911 systems and are being identified as best-in-class examples of e911, CAD technology and emergency communications.



Aurora, Colo.

Working with the fire department, Aurora's IT department delivered a network-based fire station alerting system integrated with CAD. This redundant alerting requirement was required for the city to achieve an ISO rating of 2 (the highest in the Denver metro region) which influences the insurance premium for homes and businesses within city limits. Because of this change, the fire department's 8-minute response time statistics have improved from 88 percent to its all-time best of 92 percent. The city also implemented an IP-based e911 telephone software answering system in the emergency dispatch center, which positions it for next-generation CAD and 911 systems that allow broadened lines of communication (texting and receiving pictures, videos and audio from smartphones).

Separately, in an effort to emphasize self-service online channels and reduce some of the e911 and police workload, the city is using a third-party hosted Web application for online traffic accident reporting. This time-saving application allows citizens involved in a traffic accident (non-injury, less than \$1,000 damage, no drugs involved) to report online and receive police reports automatically used for insurance claims. The information collected is transferred electronically to Aurora's police record system and into the Colorado DMV.



Fairfax County, Va.

The Fairfax County, Va., Office of Emergency Management and Sheriff's Office — working with the Police Department, Fire and

Rescue Services Department and Department of Public Safety Communications — have executed a complex procurement addressing multi-agency technology and system requirements. This includes CAD, police records managements, fire records management, fire emergency medical service reporting and CMS for the Sheriff's Office. This complex CAD and RMS project is still in process and, when completed, will result in significant improvements to public safety, including a multi-jurisdictional map that supports the most efficient routing to points within the county and neighboring jurisdictions; a new GIS-enabled CAD system, which will allow the closest and most appropriate unit to respond; and mobile digital connectivity to the RMS, which will allow officers to submit electronic reports.

The county employs a unique CAD2CAD exchange — a standards-based service-oriented approach (SOA) to data exchange — which allows jurisdictions to view the real-time status of fire units and request resources from one another directly from within their own jurisdiction. Reduction in 'dispatch time' and 'turn out' time is the benchmark used to measure results. Alexandria's prior average time of getting a medical unit on its way was 90 seconds. The city is now doing this within 20 seconds. This is a 78 percent reduction in time.



Hampton, Va.

The city of Hampton completed a major 911 emergency communications systems upgrade to provide state-of-the-art radio and

telephone technologies to the public and first responders. In 2010, deployment of a new P25 standards-based interoperable public safety/city agency 800 MHz radio system with 2,000 subscribers was completed. The system provides first responders with

radio-to-radio interoperability across other locality and regional systems. Radio system improvements include better on-street and in-building coverage, modernized infrastructure, enhanced redundancy and survivability, complete interoperability with regional first responder agencies, and implementation of mitigation strategies at communications sites for wind and flood. The system is integrated with the enterprise telephone network to ensure diverse call routing, flexible 911 resiliencies and disaster recovery.



Louisville, Ky.

The city combined its 911 and 311 operations and, in 2010, Louisville Metro opened the \$90 million MetroSafe building. MetroSafe is a

joint operation to consolidate communications for 911, metro police, fire and rescue and emergency medical services. In addition, MetroSafe offers interoperability for all remaining 911 PSAPs within its jurisdiction. The city also completed a massive overhaul of its emergency communications network. The new network allows 59 government agencies with over 5,000 radios to share voice and data. It also increases and streamlines services through newer applications, infrastructure and devices. It consolidates PSAPs, and merges fire dispatch with MetroSafe. The new automated call distribution (ACD) system has resulted in faster response times for calls, from 60 to 70 percent of calls answered to over 90 percent of emergency calls answered in less than six seconds.



New York, N.Y.

The city moved forward with its unique, privately managed public safety broadband network, known as NYCWIN. NYCWIN, a

first-of-its-kind 4G private broadband network, supports numerous remote and mobile users throughout the city. Partnering not only with public safety, but also with other city agencies, NYCWIN provides fast access to myriad mobile applications. By utilizing NYCWIN, the New York City Department of Transportation has embarked on

an expansion program to cover all of its more than 12,000 signalized intersections. By replacing outdated, leased copper circuits with wireless connectivity, the city provides high-speed data communications using the intelligent transportation systems (ITS) standards to support online, real-time control and monitoring of the traffic controllers.



Prince George's County, Va.

Prince George's County, Va., has implemented a public safety radio strategy, which has increased bandwidth and allowed for greater inter-agency communications in the event of a multi-jurisdictional emergency. The 700 MHz radio system allows a single system to support 23 public safety agencies. According to Riverdale Park Police Chief Teresa Chambers, "The lifeline for men and women on the street is our ability to communicate. This is the first time in my 35th year of policing that we will be able to talk to Prince George's County and also other municipalities." A \$1.5 million federal grant is funding the acquisition of the 700 MHz radios. The new county-wide radio system will allow municipal police departments to communicate with county, state and other municipal police departments on the same system for the first time.



Wake County, N.C.

The county upgraded its 800 MHz radio system, and its alphanumeric and tone and voice paging platforms that are used by county and municipal law enforcement, fire, emergency medical services, and others. Wake County's radio system is an integral part of the North Carolina State Highway Patrol Voice Interoperability Plan for Emergency Responders (VIPER) radio network. Wake County completed migration of the Wake Forest and RTP radio site to simulcast technology, adding significant call capacity. Wake County and the city of Raleigh operate the Raleigh-Wake

Emergency Communications Center (RWECC) — which serves as the critical link among all public safety agencies and citizens. Wake and RWECC staff replaced the existing CAD primary and backup servers and upgraded the software to the most current releases to preserve and extend efficiency in their operations. The county's emergency medical services deployed a mobile gateway in each vehicle to ensure continuous broadband connectivity for the existing navigation and dispatch software on the vehicles' laptops, LifeNet interfaces and Roadsafety black box modules.

Fire and Emergency Medical Services (EMS)

When it comes to IT implementations, fire and EMS units have not traditionally received the same attention as their law enforcement counterparts. However, the following examples indicate that is changing.



Fairfax County, Va.

In Fairfax County, emergency responders can collect patient treatment information in the field by using a tablet PC. In addition, COTS software allows the county to rapidly identify, prepare for and coordinate general deployment of public safety resources and mutual aid units. The new system supports the allocation of fire department equipment, improved strategic fire resource planning, and fire box analysis and redesign based on event type, location and frequency. The system also allows users to evaluate the effectiveness of current and/or proposed mutual aid stations, thereby facilitating better decision-making when drafting future mutual aid agreements.



Montgomery County, Md.

Montgomery County implemented ePCR, which is similar to Fairfax County's system. ePCR is a field reporting system that utilizes mobile computer and wireless

communications technology to record patient care data en route at the patient's side. This system interfaces with CAD to provide field personnel with data while treating the patient. It also interfaces with Medtronic LifePak (a heart monitor device) to gather patient diagnostic and assessment data. ePCR greatly improved the EMS business process that allows the agency to gather patient data more accurately and quickly. This system enables the county to provide an improved lifesaving service to the citizen. Hospitals can now provide better and faster medical treatment due to a more comprehensive HIPAA-compliant patient report generated by the system.

patients and insurance companies and more efficiently collecting fees. Previously, all data was collected manually and the paperwork was submitted to the billing department at the end of each shift. Now all data for billing is collected in the field and transmitted electronically using the city network. The department also just completed the installation of a tablet patient care reporting system. In addition to improved patient data collection, this ePCR system interfaces with the billing system and will allow the department to submit bills to insurance companies quickly to prevent payment refusals.



Riverside, Calif.

The Riverside Fire Department (RFD) uses software that integrates fire and EMS data with GIS, allowing RFD to map and analyze data. This system helps RFD identify incident patterns and response effectiveness, compare estimated response times with actual response times and analyze station response zones. RFD can develop density maps of incidents by time or type, conduct spatial trend and historical incident analysis, and generate hot spots of incident activity — among other things — through the modeling capabilities of the software. The fire department can break down response time into multiple components to analyze dispatch time, time en route, time in station, and others. RFD can also compare response time of individual units, stations or battalions. Additionally, RFD has deployed mobile data computers with GPS capability in its response units. These interface with the dispatch system's automatic vehicle location (AVL) feature. When fully configured and operational, AVL will assist with optimal dispatching of units, allowing for the closest unit to respond to an incident.

Corrections/Probation

Corrections and probation departments are a critical component of the public safety and law enforcement cycle. Reducing recidivism is a major goal of most, if not all, municipalities. ICT technologies are also playing an increasingly important role in these agencies.



Bexar County, Texas

Bexar County is working to automate jail processes to control criminal justice systems costs and streamline jail management. The Jail Population Analysis System (JPAS) was created to assist Planning and Resource Management (PRM) in monitoring and reporting on the jail population on a daily basis. The system tracks all inmates currently in custody, all inmates who were released (which is further split into general releases and those who bonded out), along with all new intakes, detentions and sentences over a specific reporting period.



Tucson, Ariz.

In January 2009, the Tucson Fire Department implemented a COTS solution to provide an accurate method of billing



Chesterfield County, Va.

Chesterfield County recently designed, created and implemented a new jail management system (JMS) to meet specific requirements for the sheriff and

police departments. The county implemented phase one of the “booking front end” project with sheriff and police departments to provide automated front-end data entry for jail intake and automatically transfer data to the state LiveScan system. This eliminates duplicate data entry issues and improves data integrity.



King County, Wash.

In 2010, King County refined several online services associated with regional criminal justice, including its jail inmate lookup

service (JILS). This online jail register allows citizens to determine who is being held in one of the two county jail facilities, and find information related to their status (such as visiting schedule and cost of bail). In 2009, JILS received an average of 525,000 inquiries per month — these inquiries represent reduced phone inquiries to the jail, and improved information access for citizens. Going forward, King County intends to further improve corrections by replacing the jail management systems. This would allow the county to:

- provide online recording of logbook entries for security checks;
- eliminate duplicate data entry of information about the inmate into multiple intake systems;
- provide readily available history for offenders who are already in the system;
- better identify inmates with integrated mug shots and biometric identification (single digit fingerprint) upon intake;
- provide system-based management of inmate visitation, as opposed to the current manual process that is hard to research;
- automate the calculation of sentences, taking into account the credit for time served, good time, good time removed, consecutive and concurrent sentences and court-ordered input; and
- schedule and track inmate attendance at educational and behavior modification programs such as AA, GED classes and religious programs.



Oakland County, Mich.

Oakland County’s District Court Probation System (DCPS) is an interactive real-time system that allows court staff to easily access probation information. This application — which replaced a manual, paper-intensive system — allows courts to provide services with fewer probation officers. Probation officers can view case information, enroll defendants in court-ordered programs, enter results of court-ordered drug and alcohol tests, set schedules for meeting with clients and search the database. Output from the system includes the ability to create letters to clients, court orders and case lists. DCPS passes information back to the mainframe to update data and to create a register of action entries. The application is expected to pay for itself in four years and save \$200,000 annually in subsequent years.



Westchester County, N.Y.

Westchester County has been working to reduce costs and increase efficiencies associated with the care of inmates at the county jail. The county is integrating analytics from disparate systems and reinforcing its commitment to public safety. An inmate medication dispensing system allows for medications to be ordered in sufficient quantity, but dispensed immediately prior to consumption. The county estimates that the new system will save approximately \$150,000 in medication costs. The county also developed a Web-based system that will improve the delivery of mental health services. The system serves as a vital tool for Correctional Health Services (CHS) staff and the Department of Community Mental Health (DCMH) as they assess the health of Westchester’s prison population and deliver mental health and housing services.

Emergency Management

In many localities, emergency management agencies exist to coordinate the emergency response of multiple agencies in the



case of disasters or other emergency situations. Information and communications technologies are playing a critical role in performing these duties.

to integrate SNAP information with fire and police systems. SNAP information is available to first responders arriving on the scene. See more at www.fortworthgov.org/applications/snap/.



Boston, Mass.

The city of Boston is using AVL technology to improve municipal management of snow emergencies. Boston developed the Snow Common Operational Picture or SnowCOP. Using a tracking server to manage GPS data feeds from city vehicles and the CRM system to track call center inquiries, the system maps snow service requests with real-time plow locations and routes. SnowCOP allows city agencies involved in snow emergency operations to collaborate, better distribute plows, provide more informed responses to incoming calls for snow services and identify problem areas even before calls are received.



Montgomery County, Md.

Montgomery County is using geographic Web services technology for GIS analysis of police and fire incident data. This Web service is utilized for conversion of 911 incident data, which allows a common mapping operational picture application for emergency management. Combining social network information, external geographic and non-geographic information allows for a common operational picture, which puts critical information in a central place for first responders and decision-makers. The goal is to reach out to other 911 emergency response centers to share incident data across the region.



Fort Worth, Texas

In Fort Worth, ICT is being used in the development of systems integrations between emergency management and the police and fire systems. The Fort Worth city website is used to communicate crucial emergency information to the public. Information provided by the Outdoor Warning System, KnoWhat2Do in an Emergency, Special Needs Assistance Program, SKYWARN Storm Spotters, Radio Amateur Civil Emergency Service and other such information is available via the city of Fort Worth's website at www.fortworthgov.org/citymanager/em/default.aspx?id=354.



New York, N.Y.

New York City strives to be at the vanguard of public safety and emergency management initiatives. In 2010, the Office of Emergency Management developed a situational awareness for field response system, which provides automated, round-the-clock situational awareness information in 60 seconds or less. The city can quickly deliver PDF maps and reports to first responders in the field. These maps and reports can include information about the nearest critical facilities and administrative boundaries, as well as demographics and land use information. For more information, visit www.urisa.org/files/NYC_OEM_ESIG_2010.pdf.

The city of Fort Worth also improved operational and administrative processes by expanding its existing Special Needs Assistance Program (SNAP) to include 16 surrounding counties. The city developed an Internet application to help identify citizens that have special needs and that might require special attention should an emergency occur. Through the application, constituents can register themselves for SNAP. In addition, the city developed an interface



Orange County, Calif.

Orange County's PrepareOC is a secure, reliable, anytime, anywhere Web-based solution that brings together multiple Orange

County preparedness and response initiatives in a collaborative space. The site serves the 114 member jurisdictions of the county's operational area (OA), including county agencies, school and community college districts, 34 cities, local water districts and multiple special districts. It is a model for the other OAs in the state of California as it creates a collaborative environment in which resources and communications are open and available to the entire response community. Prior to the implementation of PrepareOC, OA members had no way to share information in a consistent, reliable fashion. All materials were paper-based and infrequently distributed. Awareness of and access to critical preparedness and response tools were limited. User roles and access rights are now customized to meet the needs of individual teams. The site is hosted at an out-of-state, Tier IV data center ensuring that as long as an authorized user has Internet access, he or she can access PrepareOC. To read more, visit www.prepareoc.org.

Public Outreach/Community Policing

Lastly, we wish to recognize those localities that have excelled at including the public in community policing or other programs.



Boston, Mass.

The city of Boston is taking the lead in sharing public safety information with constituents. Local crime data is available

through CrimeReports.com, a user-friendly website allowing public access to maps of crime data. Weekly crime statistics are published to a website, blog and RSS feed. In addition, Ready-Boston is a city-wide community preparedness initiative that educates Bostonians about all types of emergencies (both natural and human caused). Boston is one of the first cities to utilize

Twitter for disseminating public safety notices with over 20,000 active followers receiving public safety-related tweets concerning road closures, motor accidents, fires, crime incidents and arrests.



Corpus Christi, Texas

Corpus Christi's online interactive crime map allows citizens to view crime data and neighborhood incidents, subscribe

to alerts and submit anonymous tips. View the interactive crime map at www.cctexas.com/police/.



Salt Lake City, Utah

Engaging citizens is an ongoing effort in Salt Lake City and part of Mayor Ralph Becker's "4 Es": Efficiency of

Operations, Environmental Stewardship, Equality for All, and Engaging Employees and the Public. The city is deploying initiatives in the public safety and emergency management areas to increase public engagement. YouTube and Flickr have been incorporated in the way the police department sends out messages to the public it serves. Facebook, Twitter and MySpace are all tools used to engage the public in a dialogue on police and fire topics. Tracking volunteers and having them trained before they're needed is a challenge. Knowing who and where they are, and what training they have received helps get the right people to the right place. The city is rolling out a Web portal that will allow individuals and groups to register and pay for CERT training.



CATEGORY 3: HEALTH, SOCIAL & HUMAN SERVICES

For health, social and human services, budget challenges are two-fold. While these agencies are contending with budget cuts, their services are in higher demand from a public that is also experiencing financial hardships. Information technology has long been critical for these agencies, but never more than today. Sophisticated IT solutions are needed if these agencies are to continue servicing higher case loads with few workers. A number of localities are stepping up to the plate and offering innovative solutions.

Integrated Social Services

In many states, social services are administered at the county level, while the funding and the administrative rules are often dictated at either the federal or state levels of government by many distinct, separately governed agencies. This causes local governments a number of unique problems, not the least of which are inconsistent rules across myriad IT systems.

Recognizing the inefficiencies this causes social services agencies — and the confusion and dysfunction it causes the citizens receiving those services — a number of local governments have undertaken programs to address these challenges. Four localities are being recognized for the leadership roles they are taking.

and implementing a centralized intake process, resulting in process improvement and the elimination of potential redundancies. HHS created 14 data elements uniquely identifying individuals across data sets that will support an integrated service delivery model and enable HHS to become synchronized with the master client indices of other systems and exchanges. This centralized approach replaced 94 legacy applications and provided the following benefits:

1. Reduction in unstable legacy application support
2. Reduction in servers needed to run old legacy applications
3. Ability to get an unduplicated count of those served
4. Ability to determine how many clients received multiple services



New York, N.Y.

Serving more than eight million residents, the city of New York — because of its consolidated city/county government structure across five separate counties — provides one of the largest social infrastructures in the world. Multiple agencies work to provide services to the needy, and struggled to do so under the challenge of aging information silos and differing administrative policies of various programs.

To address this challenge and to provide a common intake process, the city developed the HHS-Connect program, a city-wide initiative to provide a common information structure to serve the growing social service needs of the population. In order to do this, the newly formed HHS-Connect organization challenged some of the basic policies demanded by federal and state agencies, and also developed a sophisticated Software-as-a-Service (SaaS) data-sharing structure with a common front-end information and intake process. HHS-Connect has received numerous awards, including recognition by the National Information Exchange Model (NIEM), for its outstanding use of SaaS interface standards.

HHS-Connect links more than a dozen city agencies, allowing caseworkers to share client information without compromising confidentiality. Clients only need to provide their personal and other pertinent information one time to be included in a virtual



Montgomery County, Md.

In Montgomery County, HHS is embarking on a multi-year innovative initiative to establish an integrated service model, comprised of health care and human services organizations set up to serve the county's Medicaid and uninsured populations (approximately 172,000 residents). HHS has undergone a multi-year effort to consolidate multiple social service groups under one HHS umbrella. Collectively, 130 applications were in use by these groups — with varying technologies — making this framework difficult to support and maintain, and creating challenges in sharing data.

HHS workers needed to enter data in multiple systems that serve specific programs either internally or as state mandated. The inability to connect the information in these systems created a barrier to effectively coordinating care. HHS focused on designing

integrated case file. Additional information, relevant only to specific agencies, is collected on an as-needed basis. The latest feature, Worker Connect, allows caseworkers to access information held by other agencies about the client they are serving. With HHS-Connect, the city has fundamentally changed how it provides services by connecting clients, agencies and providers to ensure holistic and integrated services that wrap around a family. More information is available at www.govtech.com/pcio/New-York-City-Integrates-Social-Services.html.



Orange County, Calif.

In Orange County, like many other governments across the country, the recession has significantly increased the demand

for public assistance. The Orange County Social Services Agency (SSA) has seen a dramatic increase in case loads, including a 40 percent increase of people enrolled in the food stamp program in 2009. Currently, over 364,000 Orange County residents receive Medi-Cal benefits and nearly 135,000 receive food stamps.

In addition, SSA has needed to reduce staffing due to budget shortfalls and comply with strict state and federal guidelines for meeting timelines and accuracy standards for processing public assistance benefits applications. Due to these challenges, SSA explored new service delivery strategies to maximize resources and enable it to operate within the boundaries of state and federal fiscal allocations.

SSA selected digital imaging of case files as the solution to enable a more effective customer service and case management practice, replacing paper case files with electronic client case records storage and retrieval. Paper case files of Medi-Cal, food stamps and general relief programs were converted into digital images for import into an electronic document management system. Approximately 180,000 active case files containing over nine million pages of documents were imaged over a 5 ½ month period. Anticipated benefits include improved customer service by enabling phone bank workers immediate access to case files and improved business efficiencies by eliminating paper documents, file cabinets and operational processes associated with pooled cases available in a database.



San Diego County, Calif.

The San Diego County Health & Human Services Agency (HHSA) recently implemented a virtual case folder solution — similar to the Orange County solution — that allows case workers to access documents at any time.

A key directive was to make the application user-friendly and intuitive with the business workflow that is driven by the statewide welfare benefits and eligibility system (CalWIN) — without adding any significant workloads to county employees. Over 500 types of case documents are now electronically managed by DoRes (document retrieval system) and available on demand to all employees. Currently there are over seven million stored images. Results achieved include:

- Cost per case processed down 18.5 percent
- Number of cases processed per full-time employee increased from 19.5 to 24
- Average time to complete case processing reduced by 22 minutes
- Client/staff satisfaction increased 22 percent

Electronic Health Records

The second major category of significant investment in the health, social and human services field is in the area of electronic health information. Electronic health record (EHR) initiatives and electronic health information exchanges (HIE) have received significant attention as both received large amounts of funding from the American Recovery and Reinvestment Act (ARRA).

While much of this work is being done in the private sector, public hospitals and county health agencies are also getting their share of the action. Three counties stand out for taking a leadership role, having made these initiatives a priority prior to the federal funding investments.



Anne Arundel County, Md.

Anne Arundel's Health Department completed phase I and II implementation for electronic medical records with the instal-

lation of an integrated clinical management system. For more information, visit www.aahealth.org/.

The department also made extensive use of social networking via Twitter and Facebook to communicate important information on a timely basis to residents — a pattern that was followed by many health departments around the county.

In 2011, the county will complete the electronic medical records project which will include:

1. Immunization tracking and inventory
2. Fully integrating electronic medical records (EMR) with clinic operations support and billing, including medications, vital signs (charts and graphs), medical notes and an EMR dashboard
3. Pulling together multiple areas of the medical record to provide an STD-centric view (due to the highly sensitive nature of this information, the system will use demographic data from patient registration, but not create an admission record)
4. Case management to allow the coordination of services from community resources
5. Referral workflow, an alternative approach allowing the health department to process internal and external referrals
6. Managed care, a complete solution for paying external providers for services, including eligibility, treatment authorization, vendor registration, contracts, claim payment and tracking
7. Epidemiology, which captures complete disease outbreak information for electronic submission to the Centers for Disease Control and Prevention
8. Patient tracking, providing tickler lists of patients with specific problems and needs, as well as timed correspondence and follow-up lists
9. Supplies inventory, including material receipts, inventory transactions and an automated interface to procedures



Loudoun County, Md.

Similar to the initiatives in its sister county, Loudoun County is also aggressively pursuing electronic health initiatives. In 2008, the

Loudoun County Department of Mental Health, Substance Abuse and Developmental Services implemented a new comprehensive IT system for billing, statistical reporting and decision support. Phase II has been in development since then, consisting of a full electronic health record for all services. The EHR system was fully implemented in 2010.

The county has already realized substantial savings by reducing data entry and improving insurance billing and service staff productivity. The mental health outpatient program has increased earned income by 17.7 percent. A key component of the system is that it supports online, real-time error trapping of business and regulatory rules. A bill to Medicaid, for example, will not process until all service event documentation is completed by the clinician and business rule compliance is entered in. This eliminates the need for retrospective medical record and Medicaid rule compliance reviews by quality assurance staff. Qualitative examination of clinician notes by supervisors and quality assurance staff can be completed online, saving travel and paper record filing. In addition, real-time data on staff productivity and client service deployment is now available, allowing service managers to better administer resources.



Montgomery County, Md.

Not to be outdone by its two fellow Maryland counties, Montgomery County has also been hard at work in the electronic health space.

Based on its work already completed in the integrated social services function, Montgomery County HHS is establishing system integration with multiple service areas such as clinics, homeless shelters, hospitals, public schools and state reporting systems. The objective of this initiative is to extend the safety of the "medical home" by launching an innovative, secure electronic health and human services record

(EHHR). The project design is based on the premise that only 20 percent of individual and population health is determined by health care services with as much as 80 percent determined by other factors, including lifestyle, educational opportunities and housing.

HHS is planning to establish an EHHR with a patient interface, building upon the HIE infrastructure in Montgomery County, with a focus on interoperability.

Communicable Disease Information and Control

During the outbreak of H1N1 in 2009, health departments throughout the country turned to innovative solutions to inform the public and attempt to control the spread of the disease. What could have been a disastrous influenza outbreak was largely contained due to this and the knowledge health departments had about the spread of other communicable diseases.

While no single health department stands out as having accomplished more than the others, a number of departments have implemented innovative solutions worth mentioning. The single most widely used technique to notify the public was social media technologies, which proved to be the fastest way to get critical information out to the potentially impacted population.

overwhelming demand for the limited amount of immunizations available for distribution. There was also a dedicated phone that had an online reservation system for setting up flu shot appointments that streamlined the overall process and also assisted administrators with planned clinic resources.



Sacramento County, Calif.

During the H1N1 flu outbreak, the Sacramento County Public Health Department established an online portal, www.sacpublichealth.net/, for outreach to constituents and the media. Among the objectives was to provide clear information regarding the need for H1N1 vaccinations; to give status reports on vaccine supply; and to alert residents to the times, dates and locations of clinics. Serving the media with an online newsroom, news conferences were streamed live (www.sacpublichealth.net/newsroom/) and archived for later use. Audio sound bites were provided to media who could not attend; and fact sheets, presentations and Web links were all housed on an easy-to-use website. Public health piggy-backed off the county's YouTube channel, providing videos that educated constituents and could be targeted for specific audiences. A popular Facebook page and Twitter updates helped the county reach younger audiences who might typically ignore government messages. See www.facebook.com/#!/pages/Sacramento-CA/Sacramento-County-Public-Health/107426978748?ref=ts, and <http://twitter.com/SacPublicHealth>

Future Developments

Cities and counties will continue developing innovative practices and techniques as agencies must operate with constrained budgets while they serve increasing numbers of constituents. The use of IT in health, social and human services will continue to be vitally important as agencies use modern and integrated approaches to improve health care and provide better services to citizens.

PHOTO COURTESY OF WWW.MIOTTAWA.ORG



Ottawa County, Mich.

To address the H1N1 scare and increase the number of people seeking immunization, Ottawa County, Mich., conducted a pilot project with the health department using social networking in its outreach campaign. This effort used social networking to promote miOttawa.org/flu and encourage flu vaccination via Facebook. To view the page, visit www.facebook.com/home.php?#!/flugranny?ref=ts.



Montgomery County, Md.

Montgomery County implemented a swine flu virus information application which allowed it to address the

CATEGORY 4: COMMERCE, LABOR AND TAXATION – ECONOMIC, BUSINESS, COMMUNITY AND WORKFORCE DEVELOPMENT

Like other agencies, commerce, labor and taxation are also struggling financially. Outside of the revenue systems in place to manage taxation, these areas have historically not taken full advantage of the capabilities that IT can deliver. However, the need to help stimulate job creation — combined with the increasing prevalence of social media — is changing this. Following are best-in-class examples of functions supporting economic, business, community and workforce development.



Chicago, Ill.

To address economic challenges and improve business processes, the city of Chicago has worked to find alternative funding sources and has developed strategic partnerships across various business sectors.

In 2010, the city partnered with organizations to launch several technology workforce initiatives. Chicago Career Tech (CCT) was launched in May to assist displaced middle-income workers in securing skills to succeed in today's competitive job market. The job re-training program, operated by World Business Chicago, integrates classroom training, and employer- and service-based learning with a business and nonprofit organization to provide unemployed middle-income workers with the skills necessary for high-demand technology-based careers. Like CCT, the Chicago Academy for Advanced Technology (CAAT), led by the Center for Polytechnical Education, completed its first year in 2010. CAAT is also helping to build Chicago's technology workforce by providing its high school students with the skills and certifications required to excel as a technology worker.

In the summer of 2010, Chicago used ARRA broadband funding to launch the Digital Youth Summer Jobs program, managed by the Local Initiatives Support Corporation (LISC)/Chicago, which is providing technology summer jobs and training to 120 youth, and outreach activities to 120 parents or caregivers in 2010 and 2011. The 2nd-annual Chicago Tech Expo, led by the Department of Business Affairs & Consumer Protection provided relevant training and education to teach business owners about how technology can improve operations, minimize time spent on administrative tasks,

help market a business and increase sales.

A long-established public-private advisory group, the Mayor's Council of Technology Advisors, works to promote growth in Chicago's technology sectors and bring the benefits of advancing technology to all Chicagoans. The council includes the CIOs and CEOs of major technology corporations in the area. For more information, visit <https://webapps.cityofchicago.org/moboco/org/cityofchicago/moboc/controller/view/searchBoard.do?cid=156>.

A new mayor's Committee on Technology Infrastructure was created in 2010 to focus on how the city can continue to meet the infrastructure needs of the next generation of technology-based companies and entrepreneurs.

To help mitigate the impact of property tax increases (due to triennial reassessments) during a recession, the city implemented a property tax relief program, which provided rebates in the form of prepaid debit cards to qualified property owners. An online application processing system — complete with a back-office system to verify and approve applications and process all approved payouts through a prepaid card provider — supports the initiative. Due to the use of technology developed internally, the only out-of-pocket costs to implement the program were the costs associated with the prepaid card provider.



Dakota County, Minn.

The state of Minnesota has encouraged county governments to use IT to improve processes around recording real estate transactions due to the increase in home foreclosures. In 2010, Dakota County became the first county in the state of Minnesota to accept electronic certificates of real estate value (eCRV), using the state eCRV application.

TO ADDRESS ECONOMIC CHALLENGES AND IMPROVE BUSINESS PROCESSES, THE CITY OF CHICAGO HAS WORKED TO FIND ALTERNATIVE FUNDING SOURCES AND HAS DEVELOPED STRATEGIC PARTNERSHIPS ACROSS VARIOUS BUSINESS SECTORS.

The project — which was awarded the Local Government Innovation Award in April 2010 — was a joint effort involving Dakota County, the Minnesota Department of Revenue and local title companies. For more information, visit www.mndor.state.mn.us/crv/.

In 2010, Dakota County also began a year-long process of implementing a consolidated real estate management system. The project will replace myriad internal mainframe systems and databases with a single, integrated system including assessment, document recording, classification and property taxation. The system is being customized to include batch tax calculation, special assessment interest rate validation and parcel grouping, and serves as a model for a modern integrated property management solution.



Hennepin County, Minn.

Like its fellow county governments in the state of Minnesota, Hennepin County has also worked hard to improve its property management processes. In 2010, Hennepin County Taxpayer Services, the county assessor, and the examiner of titles set out to achieve economies of scale, reduce costs and increase the customer experience through more integrated business operations while replacing outdated systems and processes. Some information systems needed to be enhanced, modified or replaced to provide a seamless customer experience using proven technologies, and to support the workforce in their efforts to deliver services to multiple customer channels. The goal was to increase operational efficiencies and develop a unified approach to customer service, resulting in a one-stop shop.

Direct Access to Records and Taxes (DART) is a program comprised of a variety of projects that provides customers of taxpayer services, the county assessor, and the examiner of titles with a one-stop shopping experience. All of the projects in the program align with the overall objectives and goals of DART which are to:

- provide better customer service to citizens of Hennepin County that are seeking information about property tax, real estate, licensing and election information;
- provide seamless integrated services to the customers where and when they need those services (as appropriate);

- improve operational effectiveness and increase staff productivity;
- increase access to data and improve data processing; and
- provide a sustainable and cost-effective technology platform.

The DART program aligns with strategic policies from county administration, which include achieving economies of scale, reducing costs and improving the customer experience through integrated business operations.



Modesto, Calif.

The city of Modesto is partnering with local organizations to promote City Pride, a program intended to actively solicit, maintain and build new partnerships with organizations, volunteer groups and individuals that want to improve neighborhoods. The program strives to provide a wide range of cultural, entertainment, recreational and leisure opportunities that promote a healthy community and support community events and activities. Additionally, the program helps to enhance and maintain the visual beauty of the city by developing neighborhoods free of crime, blight and decline. As part of this program, the IT department implemented interactive voice response permitting, online bill payment and electronic distribution for utility billing, an online job application tracking and notification system, and updates to the geographical information system that provides citizens with access to up-to-date mapping information for community events and activities.

The city of Modesto is also committed to expanding its internal IT workforce and continuing to conduct internal training despite budget cutbacks. This ensures that the IT workforce stays current with new technology, policy changes, governmental best practices, processes and procedures.



San Diego County, Calif.

San Diego County has developed two practices to positively impact residents and improve business processes.



The San Diego library system installed a self-service check-out that utilizes radio frequency identification (RFID) technology. RFID chips have been placed in the entire library collection — a total of 1.5 million items. All materials are checked out of the library through the RFID system, thus allowing librarians and other employees to perform other tasks. The county has updated the website to allow customers to request or renew materials online and pay late fees. County residents can also renew materials by phone and be reminded when materials are due. Some of these changes can be viewed at www.sdcl.org.

The second application helps the county better manage the 25,000 animals that come through the county's three animal shelters each year. Staff at the Department of Animal Services (DAS) must maintain an accurate kennel location for each animal so they can find animals for prospective adopters, but more importantly because some of these animals require medical treatment. A new module of animal management software was implemented that stores bar codes in the animal record. Bar codes are attached to each kennel, and daily reports will show the bar codes along with feeding and medical needs. Handheld bar code scanners will be used to scan both kennel and report bar codes. The department anticipates that this will free up staff time, allowing employees to better care for the animals. In addition, animal services has a mobile initiative to place laptops/printers in trucks for animal control officers. This will provide remote access to the animal management system. The county runs 33 patrol vehicles 24/7 to respond to an estimated 28,700 patrol incidents annually.

Future Expectations

Because of the continuing high unemployment rates — and the greater use of IT for identifying job opportunities and matching worker skills with those opportunities — we expect more innovative solutions will be developed in this area. Counties and cities are increasingly desiring a more highly educated and well-trained workforce and we encourage more use of IT to assist in that challenge.

CATEGORY 5: FINANCE AND ADMINISTRATION, HUMAN RESOURCES, LICENSING AND PERMITTING

This category acknowledges accomplishments in three fundamentally important areas:

1. Finance, Administration and HR – The backbone of every municipality and organization, this category recognizes those localities that have adopted a formal ERP process and have implemented it across the entire local government structure.
2. Procurement – Procurement processes need to be closely tied to the ERP/financial system. Agencies can also now go online to provide a collaborative e-procurement process to help reduce or eliminate the use of paper.
3. Licensing and Permitting – These are functions that are performed in municipal governments that manage building, land-use permits and various licensing processes.

Finance, Administration and Human Resources

Finance and budgeting are becoming increasingly important in the administration of local governments during times of reduced revenues. As administrations consider cutbacks, furloughs, early retirements and other centrally managed human resource initiatives, HR departments and processes take on a critical role in the overall management of the enterprise. ERP systems — with their ability to help in both finance and HR — are crucial.

Integrating information across agencies to better manage the overall enterprise is an important concept that is widely accepted by governments today. ERP systems have become the mainstay of almost every governmental entity as software manufacturers have tailored their ERP products to government processes.

Due to this, selecting best-in-class implementations can be difficult. However, implementation of these systems is not only about installing software. It is about changing processes to take advantage of the software, as opposed to modifying software to meet the old ways of conducting business. If done properly, governments vastly improve business processes and can begin to operate in an online, fully integrated paperless world. In addition, they can begin to address the age-old problem of information stored in agency silos that is not accessible across the enterprise.

Attacking this challenge is not easy, but it appears that one entity has established a best-in-class position by not only implementing and integrating enterprise-wide solutions, but also by tying the results to a unique public reporting process.



Montgomery County, Md.

Montgomery County's enterprise architecture program has allowed the county to achieve considerable savings for ongoing operations while continuing to provide a high level of service to constituents. The enterprise architecture program focuses on implementing county-wide solutions across myriad areas, including ERP for finance and administration, MCtime for time reporting, constituent relationship management (CRM) for 311 operations, and an enterprise GIS. By integrating these various components, the county is addressing shared information needs across the enterprise.

The ERP initiative re-engineers core business processes supported by enterprise technology solutions. In 2010, the county completed an extensive application inventory portfolio, business process mapping projects and a legacy system retirement plan. These efforts included nearly all 40 county operating departments and leveraged best practices and lessons learned from other county agencies and external organizations and service providers. The county implemented Phase 1A of the ERP initiative — which includes procurement — in 2010. Other phases of the ERP project — including budget, human resources and payroll — will go live in 2011. The MCtime application also went live in 2009 and 2010, and it now manages the time reporting of all county employees.

Montgomery County has established a best practice example by initiating a CountyStat public reporting tool directly feeding information derived from the integration of the ERP system and the county's 311 system. As a direct result of the enterprise approach, the CountyStat review (www.montgomerycountymd.gov/mcgtmpl.asp?url=/content/exec/stat/index.asp) of each department's performance will identify and track the county's overall performance.

Procurement

Enterprise systems must not only address internal functions such as finance, budgeting and HR, but they must also address those functions that extend outside of the enterprise, particularly when it comes to procurement. While procurement systems must



be closely linked to the financial ERP system for accounting and reporting purposes, they must also increasingly interface with the public that desires to do business with the municipality.

E-procurement has become the predominant way to accomplish this. By integrating an online procurement vehicle with an internal document management solution, cities and counties are striving to develop a true paperless procurement solution. There are many ongoing attempts at accomplishing this goal, some of which are described elsewhere in this report. Larger enterprises tend to tackle this challenge on their own by creating e-procurement solutions that work collaboratively with the vendor community. This is similar to the techniques discussed below where we focus on buildings and other permitting agencies that are beginning to use online systems to work more efficiently with contractors and residents doing business in their communities.

Smaller counties and cities, however, are tackling this challenge on a multi-jurisdictional basis. For example, the Rocky Mountain E-Purchasing System comprises 59 participating city and county agencies. Douglas County, Colo., reports that the e-purchasing system provides simplified tracking of documents and amendments; instant access to the entire supplier database; a streamlined bidding process; improved response times and increased bidding competition leading to decreased cost of purchases. There is no cost to counties for using this system and it replaces the costly and labor-intensive internal manual bidding process used in the past. For more information, see www.rockymountainbidsystem.com.

This approach is not unique to the Rocky Mountains and the state of Colorado. Similar multi-jurisdictional e-purchasing platforms exist throughout the country. At least 11 other states have some form of an e-purchasing multi-jurisdictional capability — and the number is growing.

Licensing and Permitting

Licensing and permitting are functions that exist in most localities and are often performed by multiple agencies in those localities. Building a new building or opening a new business can require multiple permits from multiple agencies within the same locality, as well as from state and sometimes even federal agencies. From a constituent's perspective this can be very frustrating, while at the same time coordinating those processes across those

agencies can be challenging and difficult. For example, opening a restaurant not only requires building permits, but restaurant business licenses (state, county and/or city), liquor permits (normally a state license) as well as health and fire inspections/permits.

Economic development efforts in many localities are focused on making this process easier to understand by moving as much of the process online as possible. Following are five localities that are successfully meeting this challenge.



Aurora, Colo.

Aurora achieved a long-time strategic goal when it consolidated all city permit functions into one physical local and city division (public improvements, building inspection, and zoning) in 2010. This required modifications to workflows, shared e-mail accounts, reporting, online requests and task assignments. Additionally, Permits Online (<https://apps.auroragov.org/OnlinePermits/>), Online Contractor Lookup (<http://apps.auroragov.org/Onlinecontractorlookup/>), and Online Inspection Request (<http://apps.auroragov.org/onlineinspectionrequest/>) were modified to accommodate these changes and the addition of single family permitting.



Fairfax County, Va.

Fairfax County implemented a strategic and efficient system that has truly integrated the services provided by multiple departments — including the Department of Public Works and Environmental Services, the Department of Planning and Zoning, the Health Department, the Fire and Rescue Department and Housing. Permitting, inspection, licensing, cashing, code enforcement and complaint activity for land use and construction is now consolidated into a single enterprise software and database solution.

County developers, citizens and business partners are now able to streamline the process for permit issuance, inspection and code enforcement services. Inspection scheduling requests,

inspection results, Web-based permit applications and status, land use code violations and complaints submission, complaints investigations status, and historical land use inquiry are all available via the Internet and by interactive voice response 24/7 to developers and constituents. The system is fully integrated with other systems such as the state's contractor license validation database, the master address repository, the land development plans and waivers system, and the real estate tax assessment system.



New York, N.Y.

As the largest city government in the country, New York City faced an enormous challenge when its multitude of license, permitting and inspection processes were beginning to discourage industry. Operated by many agencies, the process was overwhelming to the small entrepreneur attempting to open a business.

NYC Business Express leverages enterprise technology solutions to streamline the way the local business community interfaces with city government, including offering 100 percent of Department of Consumer Affairs-regulated licenses online. In addition, hundreds of additional city licenses, permits and certifications have been digitized, allowing city government to post them on a common portal that guides users through the entire licensing and permitting process, regardless of the agency providing the service. Read more at www.nyc.gov/portal/site/businessexpress/.



Palm Beach, Fla.

Palm Beach implemented the ePZB system to better manage its building inspection and permitting processes.

The ePZB system is a state-of-the-art, integrated, Web-enabled application that makes use of an array of different technologies that are seamlessly incorporated through an intuitive interface. Visit www.pbcgov.com/iss/partnering/application/pzb.htm for more information.

The major components of the system include: (1) an accounting module that automates financial functions, including online credit card payments for applications submitted via the Internet; (2) a code enforcement module that automates several processes, including complaint and case management, business tax receipt and special permit inspections, PBSO abandoned vehicles, hearing management, fines and liens; and (3) automated monitoring of development and ordinances.

The strategic priority for Palm Beach's licensing and permitting integrated system was not only to provide the building department with a comprehensive, integrated application but, more importantly, to provide citizens, the business community and department staff with convenient access to planning and zoning information. The system has also helped the department streamline workflow processes and thus become more efficient.



Salt Lake City, Utah

Salt Lake City's new permitting system — integrated with automated plan review software — is providing a more efficient building permitting process that eliminates the use of paper. More than 2,000 registered contractors, homeowners and business entities are now working together with multiple city agencies in an online collaborative environment. Developers and homeowners can now apply for permits, pay requisite fees, submit plans and collaborate with city staff on the city access portal. For more information, go to <http://aca.slcgov.com>.

Not only does the project facilitate interaction with the public, but it demonstrates the city's commitment to environmental stewardship, and providing the most efficient and effective processes possible. In the past, each year hundreds of contractors made thousands of trips to city hall to get permits, pay the associated fees, review changes in plans and pick up permits. They brought with them volumes of paper building plans. The new system enables a completely paperless process.



CATEGORY 6: ENERGY, ENVIRONMENT, NATURAL RESOURCES, PARKS AND AGRICULTURE

Once an area of local government that received little IT attention, today IT has become a major partner in the implementation of a multitude of green initiatives in counties and cities. Practically every local government is undertaking some initiative aimed at using IT to become more sustainable — whether it be by reducing the carbon footprint of data centers, utilizing GIS and GPS technologies, supporting solar energy or constructing green buildings.

Many localities have made sustainability a critical component of their overall vision for the future. For example, the city council in Charlotte, N.C., has declared the environment to be one of its top five areas of focus.

However, most of these efforts are in their infancy and it is difficult to identify one or more localities that are truly best in class. In fact, the initiatives are so varied that the list of what criteria should be considered is still to be defined. Server virtualization is likely the No. 1 initiative in most localities. However, use of IT-driven power management technologies, and GIS-based solutions are also quite common.

Following are 10 localities that have committed to sustainability programs.

GIS Applications

GIS applications are the most prevalent among the IT applications being developed for agency operational focus. However, the specific types of applications being developed are quite varied.

Customer Interaction and Workforce Scheduling



Prince George's County, Md.

Prince George's County has been a leader in using GIS technology to coordinate service requests with all utility companies in its jurisdiction. This has greatly enhanced the county's responsiveness to citizen concerns and has improved operational efficiency. Prince George's County is also using GIS programming in street lighting projects.



Charlotte, N.C.

In Charlotte, Charlotte-Mecklenburg Utilities has undertaken the GIS Foundation Project to provide GIS models of water and wastewater systems. The GIS data will help the city manage services — including the delivery of portable water to customers and the treatment of wastewater. In addition, it will help in planning for capital investment expansion and assist with asset management.

Parks and Recreation, and Economic Planning

PHOTO COURTESY OF KAREN NUTINI



Chesterfield and Loudoun Counties, Va.



PHOTO COURTESY OF WWW.CHESTERFIELD.GOV

In these counties, and in a number of other localities around the country, GIS is being used extensively to help constituents locate parks and recreation facilities, as well as assist economic developers in selecting sites and matching them to known environmental conditions. Development plan reviews are conducted for general environmental issues on

property subdivisions and for land use applications that focus on environmental concerns including habitat protection, forest preservation and reforestation, qualitative analysis of proposed storm water treatment measures, protection of landscapes with steep slopes and sensitive mountainsides, encouragement of green building design, analysis of archaeological resources and minimization of ambient noise generated by road traffic. In Loudoun County, environmental reviews are facilitated through an extensive use of GIS data to locate and communicate information about sensitive areas. The transfer of environmental data to the county's permitting systems is also supported.

Work Crew Routing

GIS and logistical routing applications can help agencies save money by developing the most efficient and direct routes for work crews and merging recurring routes of travel. Perhaps the best example of this is in Salt Lake City. The city is estimating a five percent decrease in miles driven by work crews — this equates to a potential savings of over \$100,000 and lowers the city's CO₂ emissions by several tons.

Other Unique Applications:

Remote Lighting Controls



Chesterfield County, Va.

Chesterfield County implemented a remote lighting control system to manage parks and schools lighting. Due to

the distant, rural geography of the county, this has significantly helped in managing lighting at the school and park facilities, which are scattered around the county.

Sewer Line Inspections



Riverside, Calif.

Riverside undertook a challenging but high-value project in order to inventory and inspect the city's sewer lines. The inventory process

included the insertion of cameras into the sewer lines to inspect the interior walls of the pipe. These video clips were included as part of the inventory, then indexed and stored in the city's enterprise video management system. Links to the videos are embedded in the work order database. The primary purpose of this inventory system is to proactively detect weak points in the network of pipes and address them on a priority basis. Maintenance schedules are built based on the condition and age of the pipes in the inventory system.

Parks and Recreation Broadband/Digital Inclusion

A number of localities are beginning to put focus on digital inclusion and broadband expansion due to ARRA funding.



Riverside, Calif.

Riverside stands out for not only implementing free Wi-Fi services throughout the community (Corpus Christi, Texas, has also implemented a successful free Wi-Fi initiative; it is described in category 7 — citizen engagement), but also for initiating a digital education program through its Parks and Recreation Department.

Community centers house computer training labs for the city's digital inclusion program. Seniors and low-income citizens can take advantage of free training on Microsoft programs and learn how to use the Internet.

Solar Energy

A number of cities have been aggressive in pursuing various alternative energy strategies, most notably with solar energy technologies.



Boston, Mass.

The city of Boston's program, titled Solar Boston, serves as a best practice model by encouraging the adoption of solar energy technologies throughout the city and laying a foundation for a viable solar market. The city aims to increase Boston's solar energy system capacity to 25 megawatts by 2015. Using GIS technology, Boston has a searchable, multi-layer map interface that allows residents to view renewable energy installations across the city and calculate the solar potential of their own rooftops. The city has already witnessed a 400 percent increase in capacity. In addition, Boston has used ARRA funding to produce a solar evacuation route, so Solar Boston becomes incorporated into city-wide emergency planning efforts.

Other innovative solar energy solutions include Charlotte,



N.C.'s, expanded on-street parking with energy efficient solar-powered pay stations that also improve city streetscapes; and Irving, Texas', solar-powered LED street lighting project, which removes 266 street lights from the energy grid and replaces them with off-grid lights. The city expects to save \$125,000 annually in energy and maintenance costs.

Smart Buildings

Smart building users get the most out of every single unit of energy, water and other resources. This saves money on energy, reduces environmental impacts and improves the working conditions of employees. With hundreds of buildings to manage, many of which have been in use for many years, cities and counties are beginning to look towards information technology to assist them in better managing their facilities. As traditional building system technologies and IT have begun to merge, three localities are leading the way in this rapidly expanding capability.



Chesterfield County, Va.

Chesterfield County has been a pioneer in these efforts. Starting in 2004, the county has utilized building technologies that have driven down energy costs by 20 percent in its administrative and court buildings. The county has accomplished this by charting total energy use (electric, natural gas and propane), and reducing it to a common unit. The county tracks all buildings — including schools and utilities — and provides them with a common technique for measuring and controlling energy usage.



Charlotte, N.C.

Charlotte consistently looks for new methods of conserving energy in city buildings. In the last year, the city saved more than \$800,000 and reduced its carbon

footprint by 2,200 tons. An important part of this was implementing software to monitor the HVAC system in 60 city buildings via the Web or over an internal network. The city also implemented a software system that allows it to track energy use and carbon footprint in city buildings — approximately four million square feet of space.



Miami-Dade County, Fla.

Going forward, Miami-Dade County has one of the most aggressive energy reduction programs. The Department of Energy awarded Miami-Dade County \$12.5 million as part of the Energy Efficiency & Conservation Block Grant Program through ARRA. Over the next three years, the county will implement 14 projects across eight different departments, including an enterprise-wide facility-based management system.

IT Energy Management

Increasing efficiency in the data center has become a major focus for most IT departments. Agencies have traditionally worked to virtualize servers, but a number of other techniques are also being actively piloted.

Data Center Energy Management

Two localities stand out in the area of data center energy management: Fairfax County, Va., and Salt Lake City, Utah.



Fairfax County, Va.

Using a federal energy grant, Fairfax County is consolidating and virtualizing servers in its data center. The county plans to go from 512 physical servers down to 8 physical servers using virtual technology. This move will help the county realize significant energy savings in electricity of over \$214,000 annually, and an annual CO₂ emissions reduction of over 2,101 metric tons.



Salt Lake City, Utah

Beginning in 2008, Salt Lake City began an initiative to reduce power consumption in the data center by 10 percent. The city did not just want to shift the load to another data center, but wanted to instead create a genuine power reduction. More than 80 servers are now virtualized and another 20 have been consolidated. While the computing requirements have increased by one-third, the power consumption has remained static for more than a year.

PC Energy Management

A second major area of savings has been in PC power management. Three counties stand out as prime examples of what can be achieved outside of the data center.



Fairfax County, Va.

Fairfax County has again taken a leadership role. Following an overall plan to implement green IT initiatives, the county has established a policy to implement energy smart workstations to reduce power usages and has implemented a PC power management solution that has been deployed to 11,000 workstations.



Prince George's County, Md.

Prince George's County has finished implementing the Environmental Protection Agency's computer group policy object, EZ-GPO, on approximately 4,500 workstations and installed software that powers down computers during idle periods of 15 minutes. This resulted in savings of over \$98,000 per year.



Miami-Dade County, Fla.

Miami-Dade County is working to power down IT equipment after work hours through a program called PowerIT Down. The county has implemented an automated process that performs scans to determine what has been powered down and stores this information in a database. A business intelligence dashboard links the powered down hours to cost savings. Departments participating in this initiative can use the dashboard to show their cost savings on sustainability scorecards. Since December 2009, the county has saved over \$106,000.

Other Green IT Focus Areas

Agencies are also exploring other green IT initiatives, with teleworking becoming a popular way to reduce costs and lower carbon emissions.



Chesterfield County, Va.

Chesterfield County is a teleworking pioneer, with 30 percent of employees in the IT department actively teleworking. The county accomplished this in only one year and, in that time, commuters have driven 26,000 fewer miles, saved 1,400 gallons of gas and reclaimed 700 hours of personal time that would have been spent in a car. Additionally, 10 to 16 tons of carbon emissions have been eliminated due to fewer cars on the road.

Paper reduction and computer recycling programs are also popular green initiatives. Miami-Dade County, Fla., and Irving, Texas, have both been successful in reducing paperwork by implementing applications that meet business objectives while eliminating the need for printing. Miami-Dade County implemented an automated procurement services request application (e-PSR) while Irving developed an electronic bid package for construction solicitations. This saved Irving \$500 to \$5,000 per solicitation in printing and mailing costs.

Irving is also recognized for its IT recycling program which provides low- and moderate-income families with computers that are retired from city inventory. This extends the life and usefulness of computers and keeps them out of a landfill.

CATEGORY 7: CITIZEN ENGAGEMENT, OPEN GOVERNMENT AND ONLINE SERVICE DELIVERY

It is fair to say that no aspect of governing is more important than the relationship between government and its constituents. In the United States, citizens not only desire a high degree of service and response from their governments, but they also demand open and transparent feedback on how those they elected are performing.

Technology provides the tools and capabilities that government leaders need to meet these expectations. Fifteen years ago, sophisticated call center and customer relationship management (CRM) software — as well as the Internet — started a revolution in how governments could more efficiently communicate with the public. Today, more advanced solutions are available, including Web 2.0 social media technologies, business intelligence performance reporting dashboards and streaming video and mobile capabilities. Government leaders now have multiple tools at their disposal to satisfy demands.

However, to effectively use these technology-based tools, governments must have policies and a vision in place as to how they intend to serve constituents, and they must have the organization and fortitude in place to deliver these services in a common, consistent manner across the enterprise. This is more difficult than it appears as agencies, intent on delivering their own services, can neglect to coordinate properly with other agencies. What is needed is a consistent, customer-centric view across the enterprise, but lack of communication and coordination can result in systems that are agency-centric. 311 systems — as well as other Web-based, cross-agency solutions — have emerged to address this issue and best-in-class local governments are utilizing them to provide better service.

Best-in-Class Criteria

To be identified as a best-in-class example in this area, local governments needed to meet the following criteria:

Citizen Engagement

Do processes and systems exist to accomplish the following?

1. Provide information in multiple formats, such as social media, to educate and inform the public?
2. Enable constituents to submit complaints and/or service requests in a consistent, common customer-centric (as contrasted to agency-centric) approach across the enterprise?
3. Permit two-way dialogue through surveys or other feedback techniques?
4. Allow information from software and applications like CRM, GIS and Web 2.0 to be integrated with work management systems?

Open Government

1. Is performance data measured against benchmarks and is it regularly shared with the public?
2. Is data that is used by the government made available to the public?
3. Are meetings publicly accessible through streaming video, webcasts or other forms of media?

Service Delivery

1. Are there integrated communication channels (contact center, self-service Web and automated phone systems, walk-ins, neighborhood stations, contact center linkage with service departments, mobile citizens and mobile crews) that facilitate an effective, efficient service delivery across the enterprise?
2. Are online services available through the use of mobile technologies?
3. Do constituents have access to the status of their service requests and can they provide feedback on the quality of the service?

Best-in-Class Recognition

Eight local entities meet most, if not all, of the aforementioned criteria.



Chesterfield County, Va.

The Center for Digital Government recognized Chesterfield County in 2010 with the award for the best overall county Web portal in the country. The county's Web portal redesign in 2010 was truly a best-in-class example of promoting citizen engagement and every major citizen-facing Web project in the last year — including the website redesign, citizen GIS mapping application, and the community development information system

— has been supervised by steering committees that have citizen members.

Citizen input has produced higher-quality products and limited rework. The new website uses a state-of-the-art content management system that connects citizens to government through things like social media and interactive mapping for directions. Constituents can customize their experience with language translations and font sizing options.

Chesterfield County faced challenges with a legacy system, but reorganized the Information Systems Technology Department over the last four years to eliminate silos. Mobile technologies, telework and hosted solutions are used to increase the department's responsiveness and better enable staff to meet citizen demands.

Additionally, Chesterfield County TV was implemented to promote openness in government. Board and commission meetings are now streamed on the Internet, allowing constituents to view meetings anytime and anywhere.



Miami-Dade County, Fla.

Miami-Dade County promotes government and citizen interaction by focusing on how the customer wants to be served

— whether that be in person, on the phone, online at home, or using mobile technologies on the go. The county allows constituents to have a seamless and personalized experience through the medium they prefer. This model is viewed as the epitome of a strong constituent-centric culture.

The county's Web portal strives to engage citizens, civic groups and nonprofit organizations. Web 2.0 elements such as blogs and feedback functionality allow county employees to listen to constituents and address concerns. "My Gov Idea" is an online forum that allows citizens to submit ideas to improve county operations.

Miami-Dade County constituents can initiate over 400 types of service requests by calling 311. Previously, these services were either unavailable online or existed under stand-alone systems maintained by different agencies.

The county has worked hard to be consistent with these options, and developed a ServiceDirect application where portal users can submit service requests for things like pothole repairs and graffiti clean-up, and can report on things like illegal dumping and damaged street signs. Users can also submit photos of the incidents they are reporting, and add updates to the case after it has been submitted.



Montgomery County, Md.

Montgomery County recently implemented the MC 311 system, www.montgomerycountymd.gov/mcgtmpl.asp?url=/content/exec/stat/about.asp, and created a CountyStat program, www2.montgomerycountymd.gov/countystat/, to promote an environment of citizen engagement and open government.

These systems are components of the county's results-based accountability system. The MC 311 project includes a centralized call center and CRM system. The county has realized cost savings through business process improvements, reduced costs per call, and the consolidation of call centers and other resources.



Boston, Mass.

Like Chesterfield County, its county counterpart, the city of Boston was recognized by the Center for Digital Government in 2010 with an award for the best overall city Web portal. Boston is well-known for its population of college students who demand the latest in social media and information technology. To meet this demand, Boston has implemented a social media center that helps constituents connect with the city on social networking sites. For more information, visit www.cityofboston.gov/open/.

Boston was also one of the first localities to develop an iPhone application that enables citizens to report issues directly from their phones. Now, more potholes and graffiti are being reported through the app than anywhere else. The city implemented this



in conjunction with its mobile website, m.cityofboston.gov, which provides mobile users with quick and easy access to the information they need.

The city is also a leader in open government, and publishes myriad types of records to the website — including meeting records, board members’ information, budget documents and payroll information. A performance management program uses a Web-based system to collect and track data. Additionally, a GIS data hub uses geographic data layers to provide maps, reports and charts of service requests.



Chicago, Ill.

Chicago is one of the original implementers of the 311 model of customer service. In business for over 10 years, the services of

the 311 center have expanded and are also now online. The center is well recognized for its innovative leadership, having received the Kennedy School of Government’s Innovations in American Government Award.

The city aims to make online interaction with city government fast, efficient and enjoyable, and to leverage technology to make Chicago government more accountable, open and transparent. The new city website, www.cityofchicago.org, and several applications have allowed the city to make significant progress toward these goals. By employing Google Search across the site, the public can more easily access information about city contracts and payments, budgets, Freedom of Information Act requests, tax increment financing (TIF) and other kinds of city data. The city website was recognized by The Center for Digital Government as a finalist in the 2010 Best of the Web competition.

The city maintains an open data source catalog and plans to make additional data available at data.cityofchicago.org. The city is also a leader in using crowd sourcing technology after having run a competition to gain ideas on how to improve public transportation. City leaders are considering ways to encourage the development of innovative and useful resident-focused applications that leverage the data. To develop new approaches to application development, it is planning a competition whereby candidates can enter their

applications, the public can vote on those applications, winners and finalists can be announced, and interested parties can read blogs about the competition progress and events.



Corpus Christi, Texas

Corpus Christi built out a wireless mesh network across the entire city from which it can deliver a number of services.

From the online service center to the mayor’s comment form, the city continues to expand an extensive array of online services for payments, registrations, data searches, forms and citizen surveys. To leverage the 147 square mile wireless mesh network, it provides community hotspots in over 35 locations, including park and recreation facilities and most senior centers throughout the city. These areas of public congregation and public spaces engage the community through free, 24/7 access to the Internet.

To increase transparency and provide open government, the city added new video streaming of community leadership meetings and new financial reports and forms for a cost of less than \$2,000.

The city’s overall goal is to match new media tools, according to their relevance, by communication channels — including dynamic Web applications, social networking and mobile; by purpose — including alerts, notifications, promotions, education, policy and decision-making input, information/video/photo sharing, mapping, reporting and service requests; and by primary focus — including health and public safety. The city continues to increase its social media platforms and has a strong presence on Facebook, regularly uses Twitter, and sends public alerts through Nixle and its ReadyCC portal. BrowseAloud was added to the website, improving service to those with visual disabilities.



Louisville, KY

Louisville has made major improvements in government accountability, service delivery and the use of technology to

promote transparency. The results of those goals are on display on the city's website, Louisvilleky.gov, which has ranked in the top 5 in the Center for Digital Government's Best of the Web competition since 2006, with a second place award in 2010. The site features the Your Tax Dollars at Work portal, which opens up the city's checkbook and lets citizens view agency expenditures, vendor contracts and employee salaries. It features easy-to-use tools for residents to find services around them on a map; online service request tools and live help; and new mobile apps for news, events, finding parks and checking restaurant inspection scores.

The city recently launched Louisville Mobile. Additionally, it has incorporated the Louisville Water Company website into the city's content management system and offers residents the ability to pay their bill online. Additional new online services include a police SMS texting tip line, special event permitting and child support payments.

Published information on the Web includes employee salaries, city expenditures, vendor contracts, appointments to boards and commissions, budget information, and ARRA project information. Louisville expanded its e-government program by launching a new Louisville Open Data Initiative portal. The site, data.louisvilleky.gov, will initially provide downloadable raw data sets for the public as well as links to other Louisville, Jefferson County and Kentucky data. Louisville has also merged its 911 and 311 operations onto a common technology platform capable of tracking and reporting performance on a consistent basis.

The city is also well recognized for its comprehensive open government site, NYCSTAT. The site includes a city-wide performance reporting website and is considered to be the most comprehensive collection of publicly available performance data. The New York Data Mine allows residents to view information generated by city agencies and organizations.

In October 2009, New York City launched its inaugural Big Apps Competition by providing data sets and encouraging constituents to create digital applications using public data. The city made available more than 170 data sets from 30 agencies and commissions that included traffic updates, Wi-Fi hotspots, taxi medallion and driver information, and restaurant inspection data. More than 39,000 unique visitors have gone to the competition's website (<http://nycbigapps.com/>) and the competition received more than 80 submissions.



New York, N.Y.

New York City is a model of consolidated city/county government and the delivery of a diverse range of services to a large population.

In 2010, the city — through its highly regarded 311 system — serviced its 100 millionth caller while at the same time greatly expanding its service online through the award-winning NYC 311 Online. In 2009, 311 also became available as a free iPhone application in Apple's iTunes Store. The application has been downloaded more than 13,000 times to date. For more information, visit <http://cityroom.blogs.nytimes.com/2009/10/01/reaching-311-via-new-iphone-app/>.



For More Information

The e.Republic, Inc. *Digital Communities* program is a comprehensive and coordinated program established to bring attention to the information and communications technology (ICT) best practices of local government. Public and private sector leaders are brought together through a series of meetings, group projects, research and advisory services and electronic collaboration tools to build understanding and create productive working relationships — all focused on improving public service.

Through the Center for Digital Government and the Digital Counties and Digital Cities Surveys, we focus national attention on the best examples of how ICT are used to support and provide public service. This Best Practice Guide for Local Government is a natural extension of that mission and identifies those counties and cities that are providing exemplary electronic service to their public.

Government agencies operate more efficiently by sharing information and making better use of IT resources. And citizens are more satisfied with their government and the quality of life in their communities. That has never been more important than it is right now.

If you would like more information on any of the systems, implementations or jurisdictions highlighted in this report, or if you would like to find out more about the *Digital Communities* program or Center for Digital Government surveys, please visit our websites at www.digitalcommunities.com or www.centerdigitalgov.com, or contact:

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