



**City of Madison**

**Information Technology**

**Strategic Technology Plan**

**Revised Oct. 2007**

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## **Executive Summary**

It has been two years since the release of our last *Strategic Technology Plan Update* in 2005 and many of the recommendations included in that plan have been realized. During that time we have worked hard to improve and expand our website, the City's network infrastructure, created operating policies, implement security procedures, and organize and train staff to realize our vision to: **“Lead the City of Madison by facilitating innovative and creative technological solutions, enabling our workforce to perform their jobs more efficiently and timely, and allowing our citizens and businesses to have access to information and City services anyplace, anytime, anywhere to achieve a better quality of life.”** This document provides insight into where we have been, where we are now, and defines our strategic plan for the future. Implementation of this strategic plan will allow Information Technology to continue to play a key role in making the City of Madison workforce more efficient, and help the City to provide quality, cost effective services to its citizens and businesses.

Every City agency has become more dependent on software applications, and the network infrastructure that delivers those applications, to complete their respective missions. Servers, PC's, laptops, mobile computing devices, IP telephones, and the high-speed wired and wireless connections that link them have become the lifeline of most City agencies. Demand from our customers for network services has continued to increase in the past 2 years. To meet these demands, maintenance and expansion of our 24x7 network infrastructure has to be one of our most important strategic directions. Today, nearly 70 percent of the IT capital improvement budget goes towards the maintenance and expansion of the City network infrastructure. In order to keep up with the demands of our customers this will continue to be a high priority.

In order to make best use of our limited Development staff, we continue to focus our efforts on procuring, integrating and supporting enterprise applications. Instead of developing silo applications, we are purchasing systems that can be used by many or all City agencies. While initial capital development costs may increase, the benefits of multiple agencies being able to share data and having fewer applications for our staff to support will outweigh those initial costs. A major hurdle to overcome is resistance to changing how we work. City agencies must, for the benefit of the City, change their work processes to allow them to work across both real and perceived agency boundaries, and technology can play a part in facilitating this. Some examples of enterprise applications that are in use today include; our single Outlook Exchange e-mail system, Voice Over IP (VOIP) telephone system, the Doc-Finity electronic document management system (EDMS), the Geographic/Property system, Crystal Reports report writing software, an ESRI enterprise geographic information system (GIS) and the SXD financial/payroll system. Future enterprise applications that have been identified and added to our strategic plan include a licensing/permitting/inspection system, an electronic forms and workflow package, a new property assessment system, and a new enterprise financial system. Information Technology will continue to provide needs assessment and software selection services to help agencies purchase and integrate agency specific software into the City network infrastructure.

Minimizing the cost of governmental services is always a popular topic. Often these discussions revolve around the merger of two government entities in an effort to cut costs. As an example, Information Technology has successfully taken over the support of the voice and data services for the Public Health Madison and Dane County Department. In the future, a more practical approach may be to share services and participate in cooperative projects with various local and state government entities such as: Dane County, the Madison Metropolitan School District, the State of Wisconsin, the University of Wisconsin, and other municipalities within Dane County. Several cooperative technology projects are underway and in all cases these projects have improved the quality of services provided to our citizens and/or have lowered the costs to provide those services. In order for cooperative projects to be successful, it is imperative that our government leaders be committed to this type of intergovernmental cooperation. It is our hope that, with the support of the Mayor and the Common Council, the City of Madison will be able to lead the way with future cooperative intergovernmental technology projects in and around the City of Madison.

The City of Madison's Web site has, in the past, been nationally recognized as one of the best municipal Web sites in the country. However, it is not our intention to rest on our laurels. Our staff has recently completed a redesign of our entire Web site to make it easier for citizens to find information and to do business with the City of Madison. Expansion of our online electronic payments service, addition of electronic forms processing, further expansion of information made available to citizens, and increasing the use of maps to present data in a spatial fashion are all projects either planned or underway. In addition, a Report a Problem feature has been added to solicit service requests from citizens. Since September of 2005 we have received 12,700 requests from citizens that are forwarded to the appropriate City department for action.

To accomplish this ambitious work plan will require additional staff. To this end IT has, in the past two years, successfully transferred the Records Storage Service to the State of Wisconsin and reallocated a records clerk position to a new Support Team position. In addition, we successfully lobbied City administration for two new developer positions in the 2007 budget. While these new positions put the department in a better position to accomplish our mission, we must continue to look to add new resources as the opportunities arise.

The role of information technology in our society is expanding and the citizens of Madison expect to be able to conduct business with the City via the Internet. The City workforce expects the latest technologies to be available to enable them to perform their jobs more efficiently. Information Technology's goal is to meet and/or exceed the expectations of our customers in a cost-effective manner. Given the proper political support and funding, we are confident that we will meet those expectations.

## **Introduction**

This document is a strategic business plan that will guide the City of Madison Information Technology Department's efforts over the next three years. Many key customer staff provided information for this updated plan in the course of monthly status meetings.

Activities in this plan are designed to:

- Create an enterprise-wide focus on new application development.
- Encourage cooperation with other government entities on projects where it is beneficial.
- Preserve and modernize core business infrastructure.
- Improve public and business access to City information and services through E-government.

## **Plan Team Members**

The project team consisted of all members of the Information Technology Department Plan Team. This team is charged with setting policies and guidelines, and establishing project priorities for the department as well as providing input to the budget process.

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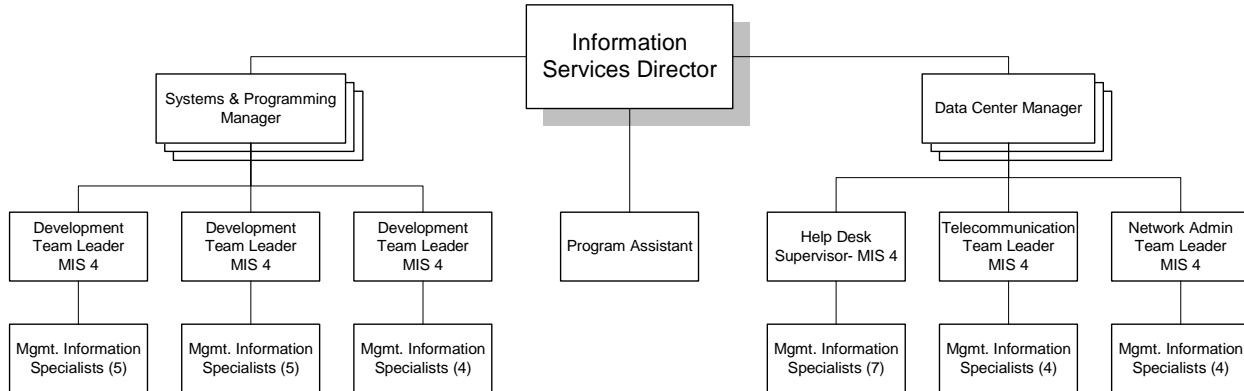
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Rich Beadles .....	Data Center Manager
Karen Bollman.....	Helpdesk Team Leader
Sarah Edgerton .....	Web Development Team Leader
Dave Faust.....	Systems & Programming Manager
Dick Grasmick.....	Director of Information Technology
Terry Jensen .....	Network Communications Team Leader
Sharon Kauffeld .....	Application Development Team Leader
Chris Lueder.....	Network Administration Team Leader
Leslie Starczewski.....	Program Assistant
Deborah Tilley .....	Application Development Team Leader

## Organization Chart

### City of Madison - Information Technology

October 1, 2007



## Guiding Principles

### VISION

Lead the City of Madison by facilitating innovative and creative technological solutions, enabling our workforce to perform their jobs more efficiently and timely, and allowing our citizens and businesses to have access to information and City services anyplace, anytime, anywhere to achieve a better quality of life.

### MISSION STATEMENTS

#### Maintain a Customer Focus

- Meet and exceed customer needs and expectations.
- Involve customers in order to understand their goals and visions.
- Assist our customers to realize their goals.
- Be responsible for City's information systems and technologies.

#### Develop Teamwork

- Bring people together to develop and work toward common goals.
- Use teamwork to make quality decisions through consensus.
- Promote cooperation with other units of government, within Information Technology, and with and amongst our customers.

Continuously Improve Services and Products

Make decisions based on careful analysis and understanding of data.

Evaluate and improve systems and processes.

Provide ongoing training for employees and customers.

Stay current with mainstream technologies and techniques.

Provide all customers with the capability to readily acquire, share, protect, disseminate, and store the information needed to successfully accomplish their missions.

Value Employee Worth

Practice thoughtful listening and value everyone's input.

Recognize the good work of others.

Recognize, develop, and utilize employee's strengths.

Encourage and value the participation of each individual.

Promote an Atmosphere of Openness to New Ideas

Communicate, Communicate, Communicate

Promote open interchange of knowledge and opinions.

Promote creative solutions, encourage risk-taking, and be tolerant of honest mistakes.

## **DIRECTION STATEMENTS**

- Attract, develop and retain Information Technology staff that are able to implement the City's IT Strategic Plan.
- Acquire hardware and software that rank among the leaders in the industry, as balanced by their compatibility with the City's infrastructure, and by the resources needed for support.
- Define hardware, software and information security standards for the City of Madison.
- Stay current with the operating systems and application software that we use, as balanced by their compatibility with the City's infrastructure, and by the resources needed to stay current.
- Implement application software which meets our customers' needs, as balanced by their compatibility with the City's infrastructure, and by the resources needed for support.
- Promote enterprise-wide applications and the sharing of data between all agencies.
- Improve end-to-end application performance, reliability, availability and data integrity as balanced by the resources needed for support.
- Work with the other agencies to develop and maintain a long-term coordinated telecommunications plan to improve bandwidth and reduce costs.
- Review the IT organizational structure in order to provide support to customers in the most responsive manner.

- Place a high priority on training in order to make better use of technology and improve customer service.
- Place a high priority on securing and protecting the City's information systems.
- Maintain service continuity planning for the City's information systems.
- Continuously improve communications with our customers in order to form business partnerships.
- Align Information Technology's goals with the City's business strategy.
- Continuously improve communications within Information Technology in order to support our mission.
- Investigate new technologies that may provide solutions to our customer's needs, and share such information with our customers.
- Expand electronic government and provide new services.
- Participate in projects with other units of government that are mutually beneficial.

Note: These direction statements are equally important and in no particular order.

## **Core Business Values**

Information Technology is a service-oriented organization. Due to the dynamic nature of our industry and the diversity of the 35 agencies that we serve, strategic planning can be a difficult task. In order for us to be able to formulate an attainable strategic plan, we need to ensure that the following core business values are the driving force of our plan.

### **1.) Provide Excellent Customer Service.**

We are committed to providing continual improvement of services for our customers. Semi-annually a cross section of our customer-base is selected to participate in a focus group to evaluate the level of our core services. During these half-day sessions, our customers are asked to prioritize the importance of our core services and then answer three general questions about each service:

- What do you like about this service?
- What do you dislike about this service?
- What is missing from this service?

The services that the focus group prioritize and evaluate are:

- Application Support – custom & personal productivity tools
- Development and maintenance of web sites
- Network Services – uptime and response time
- Security – rights and securing data/systems
- Messaging – email/fax/paging
- Helpdesk Services
- Telephone Services
- Records Management / Electronic Document Management
- Mapping
- Contingency Planning – customer's agency plans to operate when systems are down

Responses from these groups are compiled, evaluated, and prioritized. When customer feedback identifies an issue that could improve the level or quality of a service, and when the means and the resources are available to implement the improvement, the issue is assigned to the team responsible for providing the service for implementation. All customer suggestions are addressed and the disposition of each suggestion is communicated in writing to the focus group members.

In addition to customer focus groups, our Helpdesk Section serves as our central point of contact for customers who are experiencing problems, have questions, or need assistance with any of our services. The Helpdesk services our customer's needs Monday through Friday from 7:00 AM until 5:00 PM. We have supplemented our Helpdesk service by contracting with a local company that provides after-hours support

for our mission critical services and provides network monitoring and support of mission critical devices on our network 24/7.

## **2.) Incorporate Quality Techniques Into Everything We Do.**

The City of Madison has been teaching quality management skills for nearly two decades and most IT managers and supervisors have attended multiple training sessions including the City's Supervisory Academy. The Total Quality Management (TQM) processes promote participative management with employee involvement at all levels of the organization and problem solving using statistical methods. The processes are further centered on customer service with long-term goals through continuous process improvement. All IT employees are members of project teams headed by a team leader.

To meet our goals, IT has established a number of permanent internal teams that meet regularly to discuss issues and make decisions in their predetermined areas of responsibility. Team rules require mission statements, written agendas and minutes and the opportunity for all to participate in discussions.

Plan Team – Made up of Managers and Team Leaders. Meets weekly to provide input to management in the areas of training, applications development, budget requests and internal processes. This team is strategically focused.

Change Team – Consists of representatives from all sections of the department. Meets weekly to discuss new hardware/software/network change requests submitted by staff. All changes need to be approved and scheduled through this team. This team is operationally focused.

Security Issues Team – Managers and Team Leaders staff this team. This team is responsible for establishing best security practices and ensuring existing security policies are adhered to. This team has a tactical focus.

Service Continuation Team – Key members of each section of the department make up this team that is tasked with keeping the department prepared to deal with natural and manmade disasters. By first establishing service-level-agreements with customers and then providing the infrastructure and practices that would best meet the service requirements, the team prepares for a time when: normal physical access to our two Network Operations Centers (NOC's) may be disrupted or prevented; outside electrical power to our NOC's may be disrupted; systems may be compromised by electronic intrusion, disruption, or attack.

Ad-hoc Project teams – Our standard procedure for forming ad-hoc project teams includes:

- 1.) Identify the business purpose of the project
- 2.) Assign a Project Manager
- 3.) Include IT staff and customers with knowledge of the business processes
- 4.) Ensure Senior Management sponsorship of the project

### **3.) Provide A Reliable And Secure IT Infrastructure**

The overall objective is to guard the City of Madison's vital electronic data resources that contain confidential employee records, payroll information, customer information and much more. All of these records are stored in electronic data systems and must be treated in a manner consistent with current best practices to ensure their confidentiality, integrity and availability. The City of Madison subscribes to a trinity of principles regarding information security:

- A. **Confidentiality:** Ensuring that only authorized users can access confidential or sensitive information. By precisely defining groups of users, and regularly auditing the accuracy and consistency of those groups, we can limit and control who has access to what data. Through a variety of policies, practices and systems we work to ensure that only those who are authorized will access any given data resource.
- B. **Integrity:** Ensuring that data cannot be tampered with, either on the network or in storage. Our goal is to ensure that data integrity is maintained at all levels.
- C. **Availability:** Data must be available to those who are authorized to use it. Best practices regarding data backup and disaster recovery are adhered to in order to ensure that the City's electronic information will be available under any circumstances.

The City uses an outside security-consulting firm to assist with the selection and implementation of software, establishment of network and data security procedures, and to provide annual security assessments.

## **Overview**

After adding two new positions in the 2007 budget, we are an internal support department of 39 positions – servicing the IT needs of 35 other city agencies located at more than 80 sites throughout the city. The services we provide include:

- Ordering, installing, and maintaining PC's, printers, and other devices
- Managing the centralized network infrastructure
- Writing & maintaining custom systems and applications
- Maintaining the City's official website
- Assisting agencies with interactions with 3<sup>rd</sup> party solutions providers
- Providing citizen access to service information and ability to do online business with the City 24/7

Our department is organized along the two major services we provide: Support and Development.

### **1. Support – staff of 17 led by Data Center Manager.**

- a. Helpdesk
  - i) Take calls and enter into HEAT call tracking system
  - ii) Troubleshoot problems
  - iii) Escalate issues to second or third level support if necessary
  - iv) Install new PC's and peripherals
  - v) Maintain physical inventory
  - vi) Provide limited support for MS-Office Suite
- b. Network Administration
  - i) Maintains security and users on the network
  - ii) Installs, configures, maintains servers
  - iii) Responsible for system backups
  - iv) Maintains UPS systems
  - v) Responsible for administration of Outlook Exchange E-mail & Calendaring System
- c. Network Communications
  - i) Installs and configures hubs, routers, bridges and dial-up connections
  - ii) Responsible for installing and maintaining physical network infrastructure – wiring, communication devices, etc.
  - iii) Physical telephone support
  - iv) Voice-mail administration

### **2. Development – staff of 17 led by Systems & Programming Manager**

- a. Systems Analysis & Design
  - i) Follows in-house methodology working closely with customers
- b. Database Administration
  - i) Creating new databases
  - ii) Monitoring usage of databases
  - iii) Configuring brokers, databases, scripts to run 24/7

- iv) Preferred DBMS platform is SQL on a Wintel platform.
- c. Programming
  - i) Maintain legacy Progress-based systems.
  - ii) Provide limited assistance to customers in MS-Access and SQL
  - iii) Integration of Enterprise-class systems.
- d. Report Writing & Deployment
  - i) Business Objects (Crystal Reports)
- e. New Application Development/Purchase
  - i) Complete systems throughout the entire system life cycle including RFP if necessary
  - ii) Project management
- f. Maintain existing applications
  - i) Making minor enhancements and corrections to existing systems.
- g. Work with vendors and contract programmers.
  - i) Coordinate their activities with customers and other IT staff.
- h. Design, develop and maintain Internet and Intranet web sites and servers including RealServer and FTP
  - i) Keeping content current
  - ii) Using Macromedia ColdFusion and DreamWeaver, MS-SQL, and Contribute
  - iii) Compliant with U.S. Section 508 for ADA
- i. Geographic Information Systems (GIS).
  - i) Maintain central GIS repository
  - ii) Use ESRI software and tools
- j. Electronic Document Management (EDMS) using Doc-Finity and Kofax software
  - i) Scanning documents
  - ii) Storing electronic versions of documents in an EDMS
  - iii) Integration with applications
  - iv) WorkFlow and electronic signatures
  - v. Training and supporting customers

### **3. Administration – 4 positions.**

- a. Information Technology Director – reports to the Mayor
- b. Data Center Manager
- c. Systems & Programming Manager
- d. Program Assistant

## **Section Mission Statements**

### **1. Network Administration Team**

Provide City employees with the ability to access network services from any location in the world and provide citizens worldwide access to public information and services. These services will be provided securely, accurately, dependably and expeditiously.

In order to provide secure, accurate, dependable and expeditious access to network services for city employees and citizens, the Network Administration Team will strive to continuously improve and support the following services:

#### Network Management

Directory Services

Remote Access

Print and File Services

Application Management

Remote Management

Desktop Management

Virus Protection

#### Messaging Collaboration

E-mail

World Wide Access to E-Mail

Pager

Faxing

Wireless

Virus Protection

Spam Filtering

#### Server Management

Hardware

OS

#### Storage Management

Backups/Restores

#### Service Continuation

Site Redundancy

### **2. Network Communications Team**

The mission of the City Information Technology Telecommunications Section is to provide a dependable, acceptable, efficient, secure and cost effective transport

mechanism between City, County, and State services and the customers authorized to use them.

### **3. Helpdesk Team**

Continue to assist our customers by meeting and exceeding customer expectations.

#### Provide Excellent Customer Service

Assist customers to meet their goals.

Continue to streamline software distribution.

Continue to provide solutions over the phone.

Help customers realize their computers' capabilities.

Continue to provide more services with fewer resources.

Continue to explore and improve techniques for hardware setup and deployment.

Continue to research and recommend new hardware and software.

Continue to meet with our customers face to face.

Continue to solicit customer feedback.

Expand the use of the Helpdesk website to encourage a better understanding of our services by our customers.

#### Teamwork

Continue to emphasize teamwork.

Continue to recognize the good work of others.

Encourage and value everyone's input.

Continue daily meetings.

Communicate effectively.

### **4. Application Development Team**

Our mission in Application Development is to create a dynamic working environment in which new ideas are encouraged and shared freely. Communication between staff and with customers is important and encouraged. Customer satisfaction levels are routinely high. We are proactive partners with our customers and we make every effort to respond to their requests in a mutually timely fashion. Systems are acquired or developed for access by authorized customers, anytime, anywhere. Staff is kept current on mainstream technologies and trained accordingly. All IT employees work as a team toward our agreed upon goals.

We partner with City agencies to provide technology solutions that help them meet their objectives. In order to do that, we need to focus on applications that meet the following criteria:

- An enterprise focus
- Easy integration with the City's ESRI GIS system
- Easy integration with the City's Electronic Document Management System

- Easy integration with the City's Crystal Report Writing Tool
- Able to easily integrate with the City's Electronic Forms strategy
- Include a secure web based interface to allow citizens and business to interact and self-serve
- Support a mobile workforce
- Compliance with U.S. Section 508 (29 U.S.C. '794d). See <http://www.section508.gov>
- Need to be accessible and usable for both City staff and the general public
- Need to be available in a 24/7 environment to facilitate citizen self-service
- Need to support the concept of remote access to government (i.e. kiosks, mini-city halls) and e-commerce
- Must provide appropriate levels of security and data protection

## **CURRENT ENVIRONMENT**

The City of Madison Information Technology Department has two Direction Statements that help to govern the acquisition of hardware and software for the City. They are:

- Acquire hardware and software that ranks among the leaders in the industry, as balanced by their compatibility with the City's infrastructure, and by the resources needed for support.
- Implement application software that meets our customers' needs, as balanced by their compatibility with the City's infrastructure, and by the resources needed for support.

To this end we have defined a fairly narrow, mainstream set of hardware/software standards that are supported on the City network.

### **1. Servers**

With the exception of a few application appliances, the City now exclusively purchases rack mounted Dell servers for all Microsoft Windows based applications. Currently Windows 2003 Server is being installed on all new "Wintel" servers. Multiple Windows 2000 Server platforms are still supported on the network. However, Windows NT Server is no longer supported. HP LightsOut boards are installed in all servers in order to allow remote access on the local network and remote access via the Internet using VPN.

A native Windows 2000 Active Directory domain is the primary directory service on the City network. Whenever possible, applications should be integrated with Active Directory for authentication. Microsoft SMS is used to deploy application clients to the desktop. Microsoft SQL Server 2000, 2003, and 2005 are supported as our primary backend DBMS for this platform, however other DBMS platforms are allowed if support is provided by the vendor.

Applications, which require Unix, are supported on any HPUX platform. The City currently supports several HPUX servers running HPUX 11.0 on the HP "rp" or "l" line of servers. The preferred backend DBMS for our Unix platform is Progress. While a large number of legacy Progress applications are still present they are being replaced by SQL and Wintel architecture as opportunities arise. Other DBMS platforms are allowed if support is provided by the vendor.

The City also supports IBM i-Series servers (a.k.a. AS/400). These servers are dedicated to processing Public Safety applications for Madison and 16 surrounding communities.

The City uses Veritas Backup Software to perform backups on all servers except the AS/400's.

## 2. Desktop Workstations

The City uses Dell PC's and laptops exclusively for all desktops.

All new PC's and laptops are being deployed with Windows XP Professional Edition installed. Windows 2000 is still running on a significant number of City PC's, but no other versions of Windows, or any other desktop operating system, are supported by the City.

The City uses the Microsoft 2000 Suite of Office productivity applications including Outlook/Exchange email.

## 3. Mobile Devices

**PDA's** - The City supports the complete Dell Axiom and HP iPAQ lines of PDA's . In order to more easily integrate with our desktops, only the Windows operating system for PDA's is supported.

**Laptops / Tablets** – The City supports the complete Dell line of laptops and tablet PC's with the Windows operating system. If the devices are designated for fieldwork, we recommend the Panasonic Toughbook line; since, they are ruggedized to withstand harsh environmental field conditions.

## 4. Network Infrastructure

The City uses Cisco hardware for all network infrastructure including wireless access points.

The primary network protocol used by the City is TCP/IP over Ethernet. Standard network speeds on the City network are 1Gb on the network backbone and 100Mb to all workstations on the LAN. WAN connections are primarily dedicated T1 lines, with a few slower DSL and commercial cable connections used by VPN/Citrix sessions. Applications that may require the use of our "slower" network connections should be Citrix compatible.

The City goal is to expand the network broadband capacity to ensure that the City of Madison has complete operational control of it's own wide area network. This will be accomplished by installing additional fiber where the opportunities arise through planned street openings and by using high-speed point-to-point wireless connections between buildings and/or fiber segments where they are cost effective. Having a city-owned high-speed network ensures excellent service delivery to remote City facilities at a minimal on-going cost.



## **Accomplishments**

In 1992 the Information Technology Department (then named Data Processing) issued the Report on Future Directions. The report followed an extensive review of where the City should be headed with respect to new technology and contained a number of recommendations. That document became the basis for the Migration Project, which moved the City from a proprietary mainframe oriented environment to a wide-area network of more industry standard software and hardware. This project was completed in 1998. In 1999 a Strategic Technology Plan was written that has become the basis for the technology in use today.

In 2005 a revised Strategic Technology Plan was issued that reviewed progress on the earlier plans and made new recommendations regarding technology. Following is a review of some of those recommendations and the current status of each.

**A. Investigate the feasibility of implementing the following technologies. Where it is feasible, identify a project including a primary agency and submit the appropriate budget requests.**

1. Global Positioning Systems (GPS)

This technology is currently being used in several City agencies including Police, Fire, Madison Metro, Engineering, Fleet Services and Streets. While this technology's full capabilities have yet to be realized, this is a technology that will clearly expand in the future.

2. Videoconferencing

Videoconferencing was first implemented for the Police Department in 1996 to accommodate simultaneous officer shift briefings at each district office. In 2002 videoconferencing equipment was installed at each Fire Station for concurrent briefings as well as for on-demand training. Today Police uses this videoconferencing to provide simultaneous briefings before shift changes. Additional videoconferencing hardware capacity was added in 2007 to allow use by additional City agencies.

3. Telecommuting

The City's telecommuting initiative is based on providing a secure Virtual Private Network (VPN) using Citrix, City-owned laptop computers and token-based security. After several successful telecommuting pilot projects, APM 2-34 was implemented in 2004 giving department heads another tool to use. This networking option is currently being used by multiple departments.

#### 4. Voice Recognition

This technology has not matured sufficiently to be used for sensitive Police, Fire and Health report writing and is not currently in use. (Not yet good enough for government work.)

#### 5. Document Imaging and Electronic Workflow

The DocFinity imaging system has been implemented in Building Inspection, Planning, Assessor, Fire Prevention, Clerk, Treasurer and Police Department. The infrastructure and staffing is in place to expand the use of this technology to most departments.

#### 6. Remote Mobile Data Terminals and other Hand-held Data Entry Devices

Since 2003, ruggedized laptop computers that communicate over an 800Mhz system have been installed in 100 plus Police vehicles. Fifty Fire vehicles received the same capability in 2005. Designated members of the City's Emergency Operating Center (EOC) have been issued laptop computers that are use daily as well as for during emergencies.

### **B. Expand the use of the City's presence on the Internet.**

Developed and maintained internally by the City's Web Development Team, the City's Website [www.cityofmadison.com](http://www.cityofmadison.com) has grown to over 10,000 pages that receive over 17.6 million hits and 167,000 visits monthly. All City departments maintain a presence to convey information and provide contact information. There are currently 20 payment type options on [www.madisonpay.com](http://www.madisonpay.com) including parking tickets, water bills, etc. In 2006 there were 86,179 payments made for a total of \$14,302,827.00.

### **C. Standardization on Microsoft Office Suite.**

In 1998, Information Technology initiated a project to standardize on the Microsoft Office 2000 Suite. This project was completed in 2000 and has proven to be very beneficial for the sharing of documents. The department continues to monitor new versions of the Microsoft Suite and will move to a new version when it is determined that the value of upgrading justifies the cost.

Many other significant events have occurred since the release of the 1999 Technology plan Update document.

- The proliferation of criminals, terrorists, and vandals attempting to hack into networks around the world has raised our awareness for the need to secure our network and forced us to incorporate security into the daily fabric of our jobs.

- The avalanche of email being propagated by SPAM'ers on the Internet has required us to install and support an anti-spam solution on the City network.
- Open records laws have required us to look at how we archive electronic documents and electronic communications and have driven us to implement solutions to facilitate the proper disposition of electronic public records.
- A more mobile workforce has challenged us to provide secure access to network resources via wireless communications.
- The acts of September 11, 2001 have opened our eyes to the real possibility of disaster striking our workplaces and have caused us to re-evaluate and update our disaster recovery plans.
- The ever-changing nature of our industry has compelled us to implement a change management system in order to manage the changes occurring on our network.
- The increased pressures on governmental budgets have forced us to find solutions that allow us to do more with less.

These are just a few of the major events in the past eight years that have influenced how we do business. We know that there will be even greater challenges and opportunities ahead. We embrace the challenge and look forward to the opportunities.

## **New Strategic Initiatives**

We have identified four new initiatives that will help us to realize our vision of enabling the City of Madison workforce to perform their jobs more efficiently, and allow the businesses and citizens of Madison greater access to City services and information; while at the same time, supporting our core business values.

### **1. Focus New Development Applications on Enterprise Applications**

#### **A.) History**

In the past, when an agency needed software custom applications, they were developed from scratch using in-house staff. Purchasing applications was an exception, and we rarely employed outside help in the development of applications. In the mid 1990's we had a "split" staff – Analysts and Programmers. There were 7 staff members devoted entirely to meeting with agencies, analyzing their needs, and developing specifications. A Senior Programmer and seven programmers were devoted entirely to application programming – all using one language on one platform. All requests were accepted with little analysis or prioritization.

#### **B.) Today**

Since we re-organized in the mid 1990's to a combined staff of Management Information Specialists, and have moved off of mainframe computing, our workload has grown considerably. There are several areas, where we now provide support that simply did not exist then: Electronic Document Management Systems (EDMS), Internet Websites, Crystal Reports, Progress & SQL Databases, and GIS. We have nearly 70 different database applications that we support, and currently have more than 65 open projects that we are working on. Today's development workload is divided between three teams.

More and more of our limited resources are being devoted to maintaining existing applications and providing support for vendor packages. For the past twelve months less than 10% of Development staff time was available for new application development.

When Information Technology is unable to meet customer demands in a timely fashion, agencies frequently develop their own applications using tools such as Microsoft Access. Many times these applications lack proper database controls, transaction rollback, and recovery mechanisms that could result in data duplication and other data integrity issues. At other times, agencies come to us for assistance after the employee that created an application leaves City employment, or the application grows beyond their ability to handle it; which, creates further demands on our time. Often the application needs to be completely re-engineered from the beginning.

Because we have taken on support for many new technologies without adding enough new positions, we no longer have staff to dedicate to each individual agency to learn their business and analyze their needs. In addition, the available pool of traditional programmers has shrunk from seven to three, with few resources available to develop new applications.

### C.) Future

The pace of change in the information technology industry continues to accelerate. This necessitates the retraining of staff to stay current and proficient with the changes. Fortunately, we have also seen a tremendous growth in the availability and quality of vendor packages that meet government needs and are written with mainstream tools and database management systems.

Given those trends, we need to focus our efforts on finding off-the-shelf software packages that meet our customer's needs. Those efforts should be concentrated on finding solutions that give us the most return-on-investment. This leads us to looking externally for more enterprise solutions rather than trying to develop multiple similar applications doing roughly the same things.

**Following are areas on which we need to focus – in no particular order of priority or importance:**

- EDMS – Electronic Document Management System
- Report Writing – Crystal Reports
- Database Administration (Microsoft SQL and legacy Progress systems)
- Project Management
- Customer Needs Assessments and Analysis
- Website Design and Programming
- Application Programming – in-house resources limited to:
  - Mandated changes to code that we control
  - System integration
- Coordination with outside resources for new development / major upgrades
  - Vendors with pre-written applications
  - Contract programmers
- Support for HR/Financial applications
- Expand e-government
  - Integrate application data with madisonpay.com – allowing citizens to do things like look up parking tickets, look up water bills, etc.
  - Make public data more accessible to the general public.
- GIS – Geographic Information Systems
- Compliance with U.S. Section 508 for accessibility.
- Utilize secure coding practices
- Implement a service-oriented architecture (SOA).

Because of this shift in direction, we need to identify common information needs in customer departments that can be met by a single application. Further, since we will be looking for outside resources for new application work, these requests will need to be tied to the budget process. This will give City leaders an opportunity to participate in determining the value and priority of new development projects.

When looking at 3<sup>rd</sup> party solutions such as packages or contract-programming applications, the application should support the following:

- An enterprise focus
- Easy integration with the City's GIS system
- Easy integration with the City's Electronic Document Management System
- Easy integration with the City's Report Writing Tool
- Able to easily integrate with the City's Electronic Forms strategy
- Include a secure web based interface to allow citizens and business to interact and self-serve
- Support a mobile workforce
- Compliance with U.S. Section 508 (29 U.S.C. '794d). See <http://www.section508.gov>

## **2. Cooperation With Other Government Agencies**

### **A.) History**

In the past, government units have worked separately within their own jurisdictions or departments. This silo approach to information processing has resulted in the development of many redundant, and incompatible software and database systems with little thought given to how this data could be used by other jurisdictions or departments.

### **B.) Today:**

The need for governmental cooperation in the area of information sharing has never been greater than it is today. Shrinking budgets and the need to maintain, or in many cases, increase services to citizens; puts Information Technology in a unique position to provide both cost-cutting technology and the ability to offer new online services. The City of Madison Information Technology Department staff has been working with our counterparts at Dane County and other local government entities on many combined projects:

- Shared Internet connections
- Regular meetings between other governmental entities for the purpose of cooperating in the use of fiber optic cable infrastructure; which, has resulted in the sharing of fiber and leased network connections at several facilities
- A common Police Records System shared by the City of Madison and sixteen other Dane Co. municipalities
- City of Madison and Dane County Networks are physically connected

- Use of a shared backup electrical generator for both City of Madison and Dane Co. Data Centers in the City-County Building.
- Sale of used PC's to Madison Metropolitan School System
- Sharing of City backup data center facility with Dane Co. and Madison Metropolitan Schools.

### **C.) Future:**

The City needs to take advantage of the governmental cooperative opportunities that will arise in the future to reap the benefits of software, data and cost sharing by consolidating tasks for multiple jurisdictions and having them performed by the jurisdiction(s) best able to do them.

## **3. Preservation and Modernization of Core Infrastructure**

### **A.) History**

The City has standardized on Dell Servers and Workstations, SAN Technology, HP Network Printers and Cisco network infrastructure components. City IT staff has been selective with regard to hardware and software and have been successful in standardizing on “mainstream” products to support our agency’s mission. We have also tried to minimize the number of core operating systems that are supported.

### **B.) Today**

The amount of hardware that is supported by City IT staff continues to grow. Currently, IS staff provides support for over 4000 devices. These devices include, but are not limited to; workstations, laptops, PDA's, servers, IP telephones, printers, switches and routers. Currently 46 terabytes of disk storage are available with 38% already in use.

City IT staff continues to upgrade the speed of network connections at city facilities where financially feasible. Today’s emphasis is on wireless point-to-point technology that promises relatively high bandwidth at a low cost.

In 2006 the City completed a migration from Novell Netware Print and File services to Microsoft Print and File services and also from Novell ZENWorks to Microsoft SMS for Workstation management.

We currently purchase Dell Servers, Dell workstations, Panasonic Toughbooks, iSCSI SAN equipment, HP Network Printers and Cisco Switches. Our current server and workstation replacement cycle is approximately four years. Server consolidation is underway using VMWare’s virtualization software. As in the past, we continue to stay with “Mainstream” products/vendors and also minimize the number of operating and database systems that are supported.

A program has been implemented to reduce the number of personal printers, scanners, copy machines and fax machines. The benefits of this program include reduced energy use and cost savings.

### **C.) Future**

We will continue to see the number of servers grow as new packages/applications are being deployed throughout the city. These include application, database (SQL) and Web servers. We anticipate VMWare, a technology that allows the partition of a single physical server into multiple virtual servers; will better utilize hardware resources while saving the City money and staff resources involved in supporting hardware.

Continue to use and implement “mainstream” hardware and software and minimize the number of operating and database systems that are supported.

Continued implementation of higher speed fixed connections (fiber optic cable and point-to-point wireless) to City facilities is important to ensure that City staff have the available bandwidth to use new applications as well as save on recurring expenses involved in “leased” connections.

More use of Microsoft Active Directory will benefit the City by providing opportunities for better directory integration of Management products such as single sign on and authentication technologies.

## **4. Improve Citizen and Business Access to Information**

### **A.) History**

The City’s website was created in July 1995. Video streaming capabilities were added several years later. In April 2001, online payments were made available.

### **B.) Today**

The latest iteration of the City of Madison website was unveiled in September 2007. This new site provides standard site navigation and multiple portals to facilitate the use of the site.

The City’s website contains over 10,000 pages of information and receives 2 million visits and 211 million hits per year. Citizens have access to property info, Police accident reports, budgets, Council agendas, bus schedules, news releases, public works contracts, and much more.

The online payment site has 20 different applications and has processed over 367,000 transactions totaling over 60.6 million dollars since inception in April 2001.

City Channel regularly streams live City meetings such as Council and Board of Estimates. Archived versions of meetings are available for viewing on-demand at one's leisure.

Citizens can access each agency through Email communication.

Most City agencies maintain their own web page content while relying on City IT for website design.

### **C.) Future**

Expand the citizen services provided by the City's website. Expansion will be in the form of Listserv type communication capability and electronic forms processing. In addition, GIS information will be provided in many forms. Web enabled applications and data (e.g. Imaging and building permits) and more interactivity with online payments will also be expanded.

## **2007 Project Plan**

Major projects planned or underway for 2007:

- Upgrade to version 5.0 of Legistar™ Legislative Tracking System.
- Implement a pilot video surveillance system downtown with MadCityBroadband assistance to support the Downtown Safety Initiative.
- Consolidate Progress-based Geo/Property database with SQL-based ESRI database (the beginnings of an enterprise GIS).
- City and Dane County joint venture to purchase a shared backup power generator for the City and County Data Centers in the City/County Building (CCB).
- Connect City Cisco wireless hotspots to MadCityBroadband network.
- Adopt Crystal Reports as a report-writing tool and roll out to agencies, empowering them to produce their own reports on demand.
- Adopt a management strategy for the use of electronic forms and electronic workflow.
- Implement iSCSI SAN technology.
- Pilot the use of VMWare server virtualization software to make more efficient use of hardware.
- Implementation of the DeafLink service to provide online American Sign Language interpretation services for deaf citizens using City services.
- RFP for an Enterprise permitting, inspection, zoning and plan review system.
- Investigate and implement enterprise-wide digital signature technology.
- Move current four IT office locations to a central location on 5th floor of CCB.
- Acquire an enterprise permitting, licensing, inspection, asset management system.

## **2008 Project Plan**

Major projects planned:

- Implement phase 1 of the enterprise permitting, licensing, inspection, asset management system.
- Implement Telestaff Scheduling System for Fire.
- Implement GIS standards and methodologies.
- Consolidate GIS data and create GIS applications for use by City agencies.
- Expand use of EDMS.
- Implement Electronic Forms package and Electronic Workflow.
- Develop and implement an electronic signature strategy.
- Bring [www.madisonpay.com](http://www.madisonpay.com) in-house.
- Redesign major agency websites: Police, Fire, Metro Transit, Overture Center, Department of Planning and Community and Economic Development.
- Conduct an RFP for the purchase of a new enterprise Financial/HR Software package.
- Upgrade the communications network by installing both fiber optic cable and high-speed wireless links when the opportunities arise.
- Expand use of IP phone technology to all remaining City departments as the need arises and it makes financial sense.
- Work with the WiFi vendor to expand broadband coverage throughout all of Madison and implement mobile applications.

## **2009 Project Plan**

Major projects planned:

- Complete implementation of the enterprise permitting, licensing, inspection, asset management system.
- Acquire a new Financial/HR Software System, and develop implementation and data conversion plan.
- Develop plans to replace remaining legacy Progress-based application.
- Implement Web 2.0 technologies, and social networking.
- Update to current version of Microsoft Office Suite.
- Conduct RFP for new Assessment Software.
- Investigate biometric authentication tools.
- Acquire and implement new Assessment software.

## **Funding**

The City has correctly chosen to establish a centralized information services philosophy. The Information Technology Department budgets for new infrastructure, software and hardware as well as upgrades and maintenance for all General Fund Departments. Enterprise Agencies also participate on the City Network; however, they buy their own hardware and software and pay an inter-agency fee for network services and support.

Because of our shift in direction towards third-party vendors for projects that require the purchase or development of new applications, these types of projects will need to be integrated into the budget process. We will need to begin working with agencies well in advance with respect to their application needs. This will give City leaders an opportunity to participate in determining the value and priority of projects.

Further, awareness needs to be raised that acquiring new technologies, even as a result of “free” grant money, will lead to future on-going operating costs to maintain and replace those technologies.

It has been said that technology is the main productivity tool available to government to improve services to citizens. We believe this to be true; however, only by sufficiently funding and implementing new technology, can these benefits be attained.

## **Challenges**

- Purchase of off-the-shelf software for agency specific applications in order to free IT staff to work on enterprise projects.
- Develop and retain a technologically savvy and adept work force citywide.
- Overcome turf conflicts to participate in multi-jurisdictional data sharing including silos of information within City of Madison departments.
- Expand City-owned, high-speed network connections to both new and existing facilities.
- Network security.

## **Opportunities**

The advancement of technology and the proliferation of the use of the Internet have opened the door of opportunity for the City of Madison. It is our strong belief that the implementation of this strategic plan can facilitate City of Madison workforce efficiency and the provision of quality, low cost services to its’ citizens and businesses.