

2015

City of Fayetteville  
Strategic IT Plan

Center for Public Technology

UNC Chapel Hill School of Government

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Updated 2015

## SECTION 1. STRATEGIC INFORMATION TECHNOLOGY PLAN OVERVIEW

### Introduction

Both internal and external environments of City of Fayetteville are changing, and technology is a critical supporter of the development, implementation and enhancement of City services. As a result, it is imperative to outline an overall approach for the selection, use, and support of technology that aligns with City resources, business needs, and processes. Therefore, a City-wide approach based on standards, consistency, and compatibility will make more cost-effective use of technology.

The City of Fayetteville Strategic Technology Plan is outcome-oriented and highlights both short-term needs and long-term requirements for cost-effective, practical technological solutions. Through the investment in and use of advanced technology, the City can place a strong emphasis on both external and internal customer services. The Strategic Information Technology Plan provides a framework for the effective management of Information Technology. The primary goal of IT is to support the business objectives of the City and to facilitate departmental efforts to provide efficient and effective services to the citizens, businesses, and visitors of City of Fayetteville.

As is the case with all strategic plans, this plan is a “living document” which allows for changes over time and serves as a broad guideline for action. The nature of technological advances and changing governmental needs will mandate plan revisions. The plan is designed to link the City’s goals and priorities with information technology to provide improved government functions and enhanced customer service.

This plan is not intended to limit department autonomy but rather to provide a comprehensive roadmap focused on solving common problems and enabling collaboration. The plan is built on the IT management model which utilizes the best features of both centralized and decentralized IT management, support and decision making. The plan also requires the development of the IT architecture and standards which are critical for true economies of scale to be reached and for interoperability to occur.

Some of the benefits of this strategic information technology plan include:

- ✓ An opportunity to convene a strategic team of thought leaders from City of Fayetteville in order to address the critical issues facing the citizens in a holistic manner.
- ✓ The assessment of strengths, weaknesses, opportunities, and threats within the City related to business process and technology.
- ✓ The identification of enterprise-based, inter- and intra-jurisdictional technology solutions to public sector business problems.
- ✓ The examination and articulation of best practices from other communities in order to capitalize on strategic technology investments.
- ✓ Alignment mapping of technology initiatives to Fayetteville vision and goals, thereby increasing the business case for the investment.

In particular, the plan examines current investments and operations for re-engineering, communications and connectivity opportunities across the jurisdictions, and enterprise solutions that can be leveraged to increase the effectiveness and efficiency of the public sector entities within City of Fayetteville.

### Strategic IT Planning Process

The steps involved in the planning process included:

- Establishing satisfaction baseline through use of surveys distributed to all City employees. In addition, satisfaction data will be collected during supplemental interviews.
- Establishing current status review through the use of interviews and focus groups with each department head and selected end users in the City.
- Conducting issue identification sessions with selected staff once initial interviews and surveys have been completed.
- Conducting needs definition session with selected staff.

- Conducting best practices research to help guide the City in the strategic investment in technology. This research will include assessments of current successful strategies and investments in the public and private sectors.
- Preparing draft reports containing:
  - Current strengths, weaknesses, opportunities, and threats.
  - Current public administration and technology trends that will impact the City.
  - Success stories within the City.
  - Future projects for the City (focused on hardware, software, personnel, and policies/procedures)
  - Commonalities identification between departmental efforts
- Conducting review/priority setting sessions with Council members, management, and selected staff.
- Preparing final strategic information technology plan and executive summary.
- Presenting final plan to City Council, management, and staff.

### Scope of the Strategic IT Plan

The City of Fayetteville Strategic Information Technology Plan provides a framework for the effective investment in and management of information technology from an enterprise perspective. The primary goal of the Information Technology Department is to support the business objectives of the City government and to facilitate departmental efforts to provide efficient and effective services to the citizens, businesses, and visitors of City of Fayetteville. The plan examines the current state of technology in City of Fayetteville, relative to peer counties. Department technology efforts and ongoing activities are assessed for consistency with the strategic plan. The plan also provides even greater alignment between the business units and the IT Department in order to cement the foundation for an enterprise-wide approach to the management of information technology.

Many future technology efforts will cross multiple departments with a single goal of providing services to the citizens, businesses, and visitors of City of Fayetteville. This environment requires technology to be used as the basis for communication, interoperability, data and resource sharing. Furthermore, technology is the vehicle through which cost reduction can occur by increasing efficiency and effectiveness of services through the use of an enterprise architecture and standards.

## Role and Responsibilities of IT Department

The guiding mission of the Information Technology Department, in support of City of Fayetteville, is to assist the City Manager, Assistant City Managers, Council members, and departmental staff with the strategic management and use of information technology, in order to provide better and more cost effective services to the citizens of City of Fayetteville. In support of that mission, this plan links the IT Department's goals and objectives to the goals and objectives of the governmental enterprise, as well as to individual departments, in order to meet citizen needs using flexible, productive, and innovative approaches.

Furthermore, the IT Department, along with other City departments, is responsible for creating a quality-focused, highly productive, responsive organization, which meets and exceeds customer requirements through continuous improvement of products and services. The goal of the department is to support the business units within the City through the strategic use of technology. In addition, enhanced efficiency, effectiveness, and service delivery are critical to the Department and the organization at large.

## SECTION 2. STRATEGIC CONTEXT

### Overall Goals and Philosophy for City of Fayetteville

City of Fayetteville is a medium-sized City in eastern North Carolina where a strong customer-service focus improves the quality of governmental interactions and services. The City is the sixth-largest in North Carolina, and among the most ethnically diverse in the United States. The philosophy of the City is based on a deep-seated commitment to citizen engagement, quality of life enhancement, and strategic investments that improve the lives of residents, businesses, and visitors. In addition, the City is unwavering in its efforts to provide holistic, equitable, efficient, and effective high-quality services to the community. The focus on strategic investments in technology will help to increase trust, recognition, communication, accountability, innovation, and excellence in the City.

### Major Government Trends

Given City of Fayetteville's long tradition of providing customer-focused, quality services and its reputation for commitment to excellent, cost-effective government, the City is encouraged to consider or continue the use of major government trends outlined below. In addition, the list includes connections to information technology in order to enhance the work currently being undertaken in the City.

- ✓ **Benchmarking and Performance Measurement:** This trend involves ascertaining current organizational performance on a variety of key indicators, followed by monitoring and evaluation, as well as change management in order to facilitate improvement. This document serves as one example of a benchmark for the information technology department and key indicators collected as part of this strategic plan should be monitored on a yearly basis to demonstrate improvements. The City should implement the use of performance metrics in all departments, but a focus on dashboards will help provide an overview of easily understood metrics.

#### Government Trends:

- ✓ Benchmarking & Performance Measurement
- ✓ Customer Service
- ✓ Economic Development
- ✓ Outsourcing
- ✓ Responsiveness
- ✓ Transparency and Accountability
- ✓ Increased Use of Technology

- ✓ **Customer Service:** This trend is centered on create a high-quality product for citizens, businesses, visitors, and employees. Increased involvement and participation are critical, as is a reorientation in the approach to the end user as a customer. The technology department should continue to engage in providing high-quality services to its customers, both internal and external. In addition, customer feedback should be solicited at regular intervals to encourage communication and positive changes.
- ✓ **Economic Development:** Without fail, economic development has become a critical topic in City government. At the heart of economic development is infrastructure, and technology is no longer an optional infrastructure enhancement, but rather, as central to economic development recruitment as water and sewer lines.
- ✓ **Outsourcing:** City of Fayetteville has an incredible cadre of talented public servants. However, the City has long realized that outsourcing and contracting with subject matter experts is critical to extend the reach of government. In terms of technology, City of Fayetteville should work with public-private partnerships to enhance technological capacities. Approximately 20-25 percent of technology work can be successfully outsourced without detrimental effects to the City. This outsourcing should be strategic and used as a means to supplement the current staff expertise on short-term projects. Outsourcing is not a viable solution for replacing mission-critical staff, as a means to reduce permanent headcount.
- ✓ **Responsive Government:** This trend is characterized by the need to develop a new type of local government complete with new ways of doing business based on innovation and positive change. Technology plays an essential role in creating a self-service government that is interactive, timely, and relevant regardless of the time of access or distance of the customer.
- ✓ **Transparency and Accountability:** One major trend across the various levels of government in the US is a renewed focus on transparency and accountability. By allowing citizens greater access to data and information about the government, its decision-making processes, and its performance measures, governments seek to enhance public trust and create opportunities for value-add engagement.
- ✓ **Use of Technology:** Technology is used by forward-thinking governments to continually enhance service delivery and foster a “work smarter not harder” approach. In addition, the advent of Social Media has fundamentally altered the way citizens are choosing to engage with governments.

Each of these trends is considered during the recommendations for future technology projects and should be included as critical components to mapping future investments.

### Major Technology Trends

In addition to considering the government trends that are making organizations more responsive and customer service oriented, it is important to consider the major technology trends from the private and public sectors. A list of some key trends is offered for consideration and inclusion in the future projects discussion.

- Transition to digitally converged world: Almost all aspects of telephony, television, video, audio, and other communication technologies are converging into single source platforms. This newly converged medium requires robust, secure infrastructure and mobile applications.
- Support for legacy systems while migrating to more robust systems: Maintaining legacy systems while planning for their phasing out is critical. However, large-scale investments are required to replace such systems with newer technologies that are scalable for the future.
- Increased importance of computer and telecommunications security: Technological security, both physical and logical, is critical to protecting the data and property collected and maintained by government.
- Management of and investment in information technology: Information technology supports the functionality of government and requires high-level managerial attention, as well as appropriate investment. Governance structures and IT service management improve the quality of IT investments.

Information systems are a necessary investment in the overall business planning and as a requirement to conduct future governmental affairs. Attention placed on governmental and technological trends provide a foundation and roadmap for examining future technology projects.

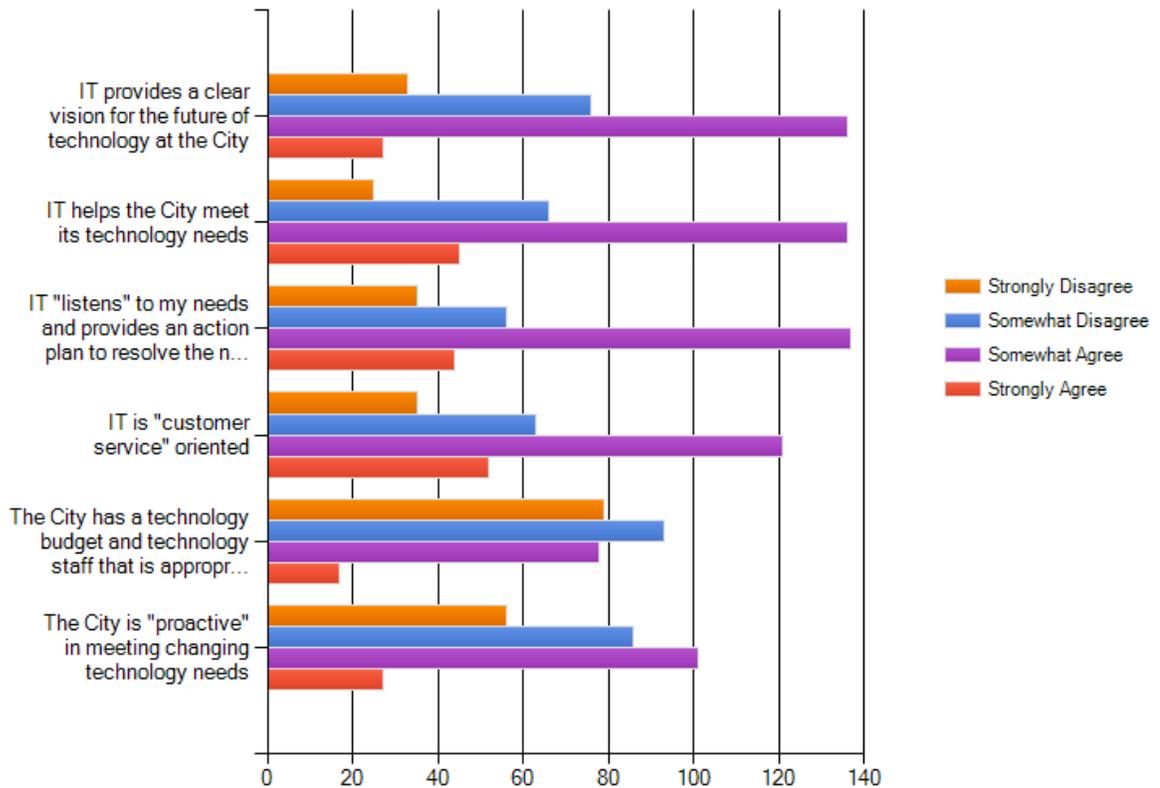
## **SECTION 3. CUSTOMERS & SERVICES OF CITY OF FAYETTEVILLE INFORMATION TECHNOLOGY DEPARTMENT**

### **Internal Users Satisfaction**

In order to determine a baseline for measuring customer satisfaction with the IT department, a brief survey was conducted on a variety of technology-related topics. The survey was designed to assess customer satisfaction by those departments supported by the City of Fayetteville IT Department, as well as by those departments supported by their own IT staff. The following charts demonstrate the satisfaction ratings of departments who are supported by the central City IT department. In Appendix A, the entire survey instrument and its data, broken out by those supported by central IT versus departmental IT is available for review.

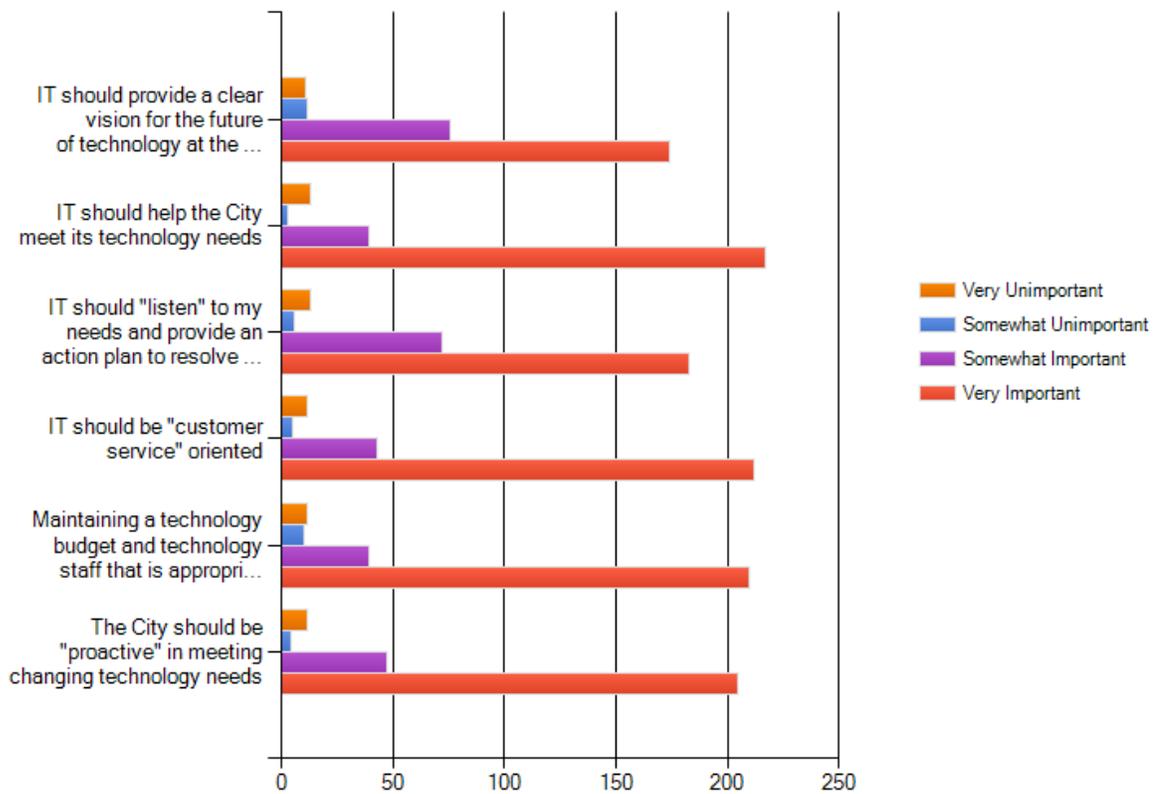
One of the most important jobs for an IT organization to perform is to set a clear vision for the future with respect to technology investments. It is clear that the departments served by the central IT department are somewhat satisfied with the vision. The use of this strategic IT plan will also increase satisfaction related to guiding vision by providing a written roadmap.

**To what extent do you agree that IT provides sufficient guidance to support future planning and to keep the City of Fayetteville's technology current?**

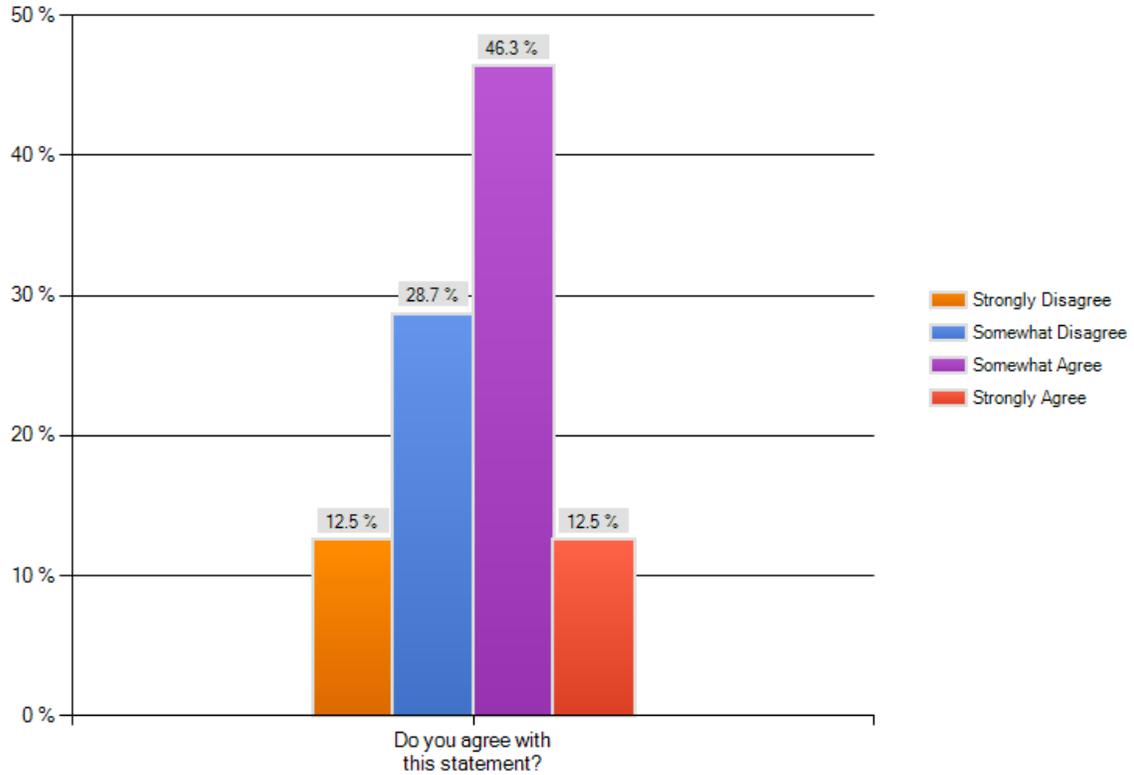


More importantly, the vast majority of City employees recognize the importance of the City IT department being proactively involved in setting vision, meeting departmental and enterprise technology needs, and serving its customers. The survey respondents feel strongly that the IT department should be heavily focused on planning, visioning, providing customer service, and being proactive. These skills are necessary to move the City further into the 21<sup>st</sup> Century, by virtue of creating an environment that is progressive, responsive, transparent, and forward-thinking. It is widely held that technology investments are as critical as other infrastructure and utility functions, and the City can reap significant benefits from transitioning into a model where they are seen as a technology leader for eastern North Carolina.

**How important is it for the IT Department to provide guidance to support future planning and to keep the City of Fayetteville's technology current?**



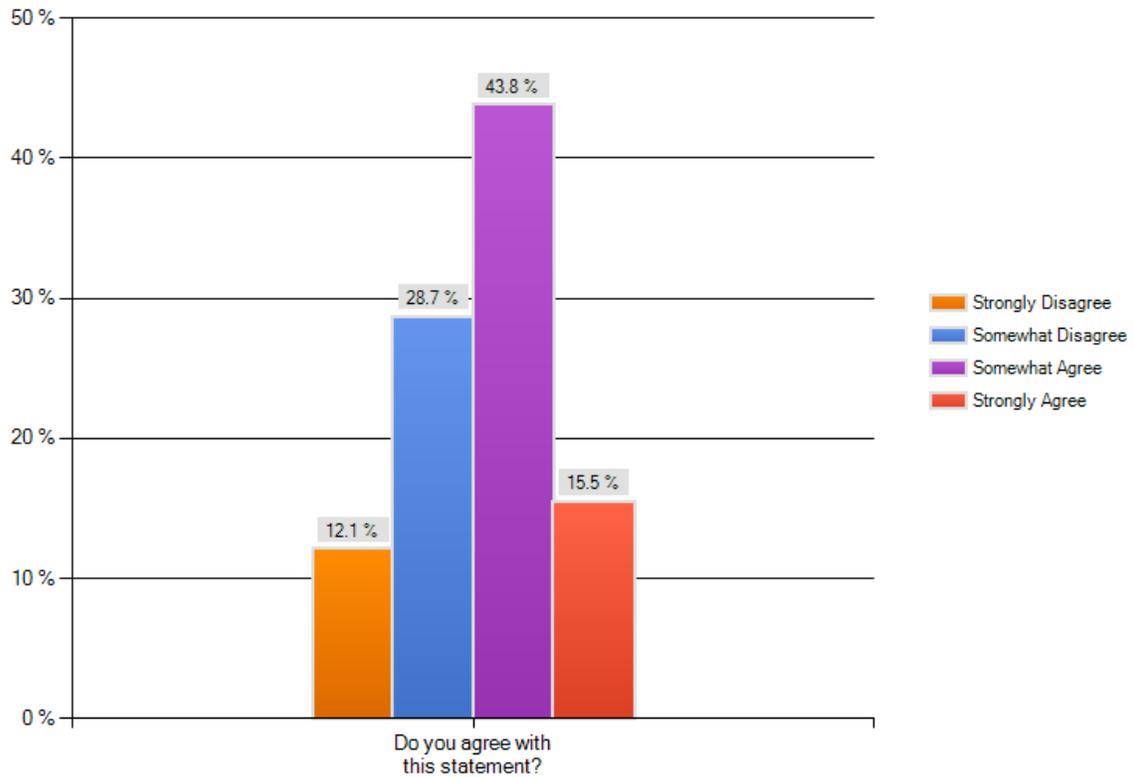
**Overall, I am satisfied with the level of Direction and Leadership provided by the IT Department**



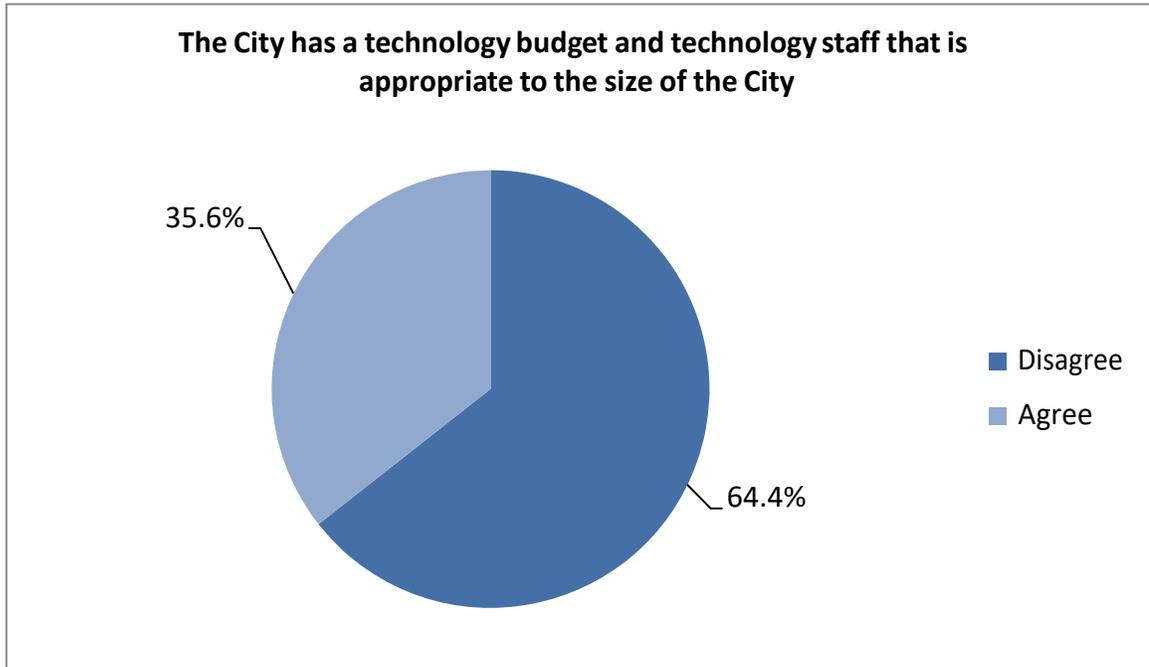
The chart above indicates a moderate level of satisfaction with the leadership and direction of the IT department (58.8 percent). This is a particularly salient set of measures, as providing leadership and direction is the ultimate goal and focus of the City of Fayetteville IT Department. Therefore, significant effort to improve in this area should be undertaken to achieve satisfaction ratings above 80 percent.

In interviews with the department heads and staff, there was significant discussion about ways to further enhance the assistance levels offered by the IT department. In Section 6. Enterprise Strategic Initiatives, concepts such as IT Governance, Employee Empowerment, and Service Level Agreements will be offered as mechanisms to foster more departmental satisfaction with the IT department.

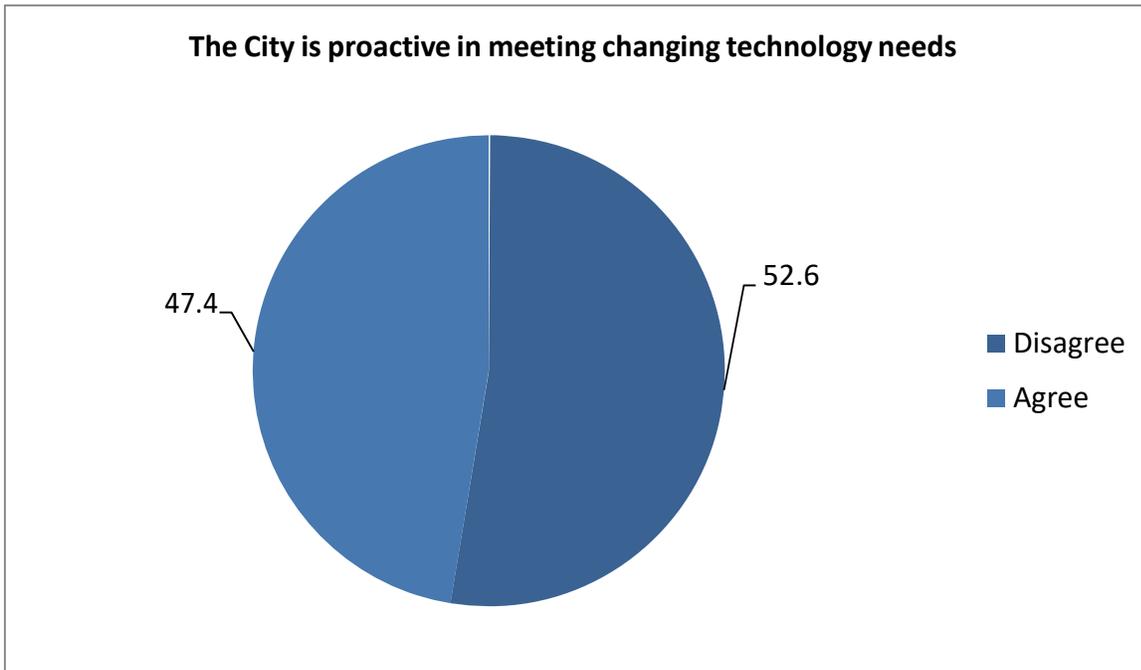
**Overall, I am satisfied that the level of communication with IT is effective and sufficient**



One area of repeated concern, as indicated in the survey data as well as through departmental interviews, is the limited communication skills within the IT department. Communication is the hallmark of an efficient and effective customer service organization, and the IT department needs to improve its internal communications between IT department employees, as well as substantially increase the frequency, accuracy, and responsiveness of communication with its end users.



Across the state of North Carolina, local governments spend approximately two percent of their general fund budgets on technology initiatives, support, and maintenance. In City of Fayetteville, the spending rate is below the average state rate. The City employees recognize the limited technology investments and overwhelmingly indicate their dissatisfaction with the current budget and technology staff size. Given the current economic climate in the City and across the state, it is a difficult time to invest additional monies into technology endeavors. However, in order to remain current and to achieve the efficiency and effectiveness gains associated with technology, the City needs to increase its financial investments.



Due to the limited staffing and budget for technology, it is not surprising that over 50 percent of the City’s employees do not view the City as being proactive when it comes to technology investments. As the City continues to realize the importance of strategic IT investments, it will be necessary to increase funding levels. However, more importantly, it is necessary for the City to identify key enterprise technology opportunities which have the greatest impact on citizens, businesses, visitors, and employees, and place priorities on those strategic investments.

## SECTION 4. CITY-WIDE INFORMATION TECHNOLOGY VISION

### The Vision

The technology vision for City of Fayetteville capitalizes on the benefits derived from strategic technology planning and investment, both for internal departments and external customers. As such, it is critical that strategic technology planning become an integral part of each department's annual planning process, as well as a key component in the long-range planning of the City. Furthermore, it is important to note that this strategic technology plan is not limited to technological infrastructure, hardware, and software, but rather, encompasses all strategic information management functions. Therefore, the strategic technology vision for City of Fayetteville includes:

- ✓ The creation, extension, upgrading, and maintenance of the technology infrastructure that allows the government to effectively and efficiently communicate between locations, departments, and individuals, thereby supporting the City's goals and strategies for responsive, open government.
- ✓ The adoption of a strategic technology investment strategy that aligns functional departmental needs and requirements with technological enhancements. In essence, the business of government will become enabled by technology instead of technology driving the business changes.
- ✓ A movement towards customer service with performance metrics to ascertain progress.
- ✓ Enterprise approaches to strategic IT investments are also central to leveraging economies of scale and holistic solutions.
- ✓ Provide internal City staff and citizens with more convenient, open access to information in order to facilitate decision-making.
- ✓ Recognize and embrace the value of innovation as a critical means to improving services.

The driving vision for information technology (IT) within the City includes the development of an enterprise-wide focus on IT, a focus on the customer and the use of IT as an enabler in efficient and effective customer service.

“Taking each challenge as an opportunity to excel, the City IT team will consistently and professionally provide information services to our customers in a timely fashion so that they can in turn well serve their customers and thus maintain and improve the quality of life in our Community.”

Dwayne Campbell,  
City of  
Fayetteville CIO

## The Mission of City of Fayetteville’s IT Department

The mission of the IT department in City of Fayetteville is multifold. Its primary objective is to provide strategic information technology leadership, resources, and access to internal and external customers within the City. In order to accomplish this goal, the IT Department:

- ✓ Supports City departments through the skills of the IT staff, including identification of technology trends, examination of key business functions, and business process analysis and re-engineering.
- ✓ Supports the City’s mission by identifying, providing, and maintaining information technology systems and applications.
- ✓ Offers training and education to foster technology-literate champions throughout the organization.
- ✓ Empowers internal and external customers to create a positive City experience through the strategic use of technology.

Each of these objectives makes City of Fayetteville a better place to work, live, and visit through the strategic use of information technology.

## SECTION 5. STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS

An assessment of the strengths, weaknesses, opportunities, and threats related to technology was conducted in a 360 degree format. Each department head was interviewed, along with key staff, to ascertain the status of each category within functional lines. In addition, technology staff members were interviewed to supplement the information gathered within the organization. The following bullet points highlight the findings in each respective category.

The City faces many of the same challenges as other state and local governments including limited resources, limited IT staff, aging and disparate technology systems, and staying current with technology advancements. In order to retain a competitive environment, in terms of economic development and citizen service, City of Fayetteville must continue to engage in forward-thinking, strategic technology investment.

City of Fayetteville has a variety of strengths identified for the current environment, including its IT staff, commitment to increasing use and investment in technology, and use of GIS. The strategic plan will build on these strengths. Some of the current weaknesses found in City of Fayetteville with respect to technology include need for additional resources, governance, and business continuity and disaster recovery planning. Strategies will be identified to improve upon these areas. Opportunities such as the emerging technologies, growing staff capabilities and increased management awareness of technology are central to the strategies included in the plan. Threats, including security breaches, potential data losses due to viruses, malice, or natural disasters, and unmanaged expectations, must be acknowledged and planned for to ensure that they do not create an unstable information technology environment.

The SWOT analysis provided an abundance of useful information about the organization, the environment, and the future of City of Fayetteville. Furthermore, each of the department heads and technology staff were asked to indicate their departmental technology needs. The following section of the strategic plan represents the prioritization of projects with the departmental identities removed when possible to allow for examination of cross-departmental impact and functionality. It is important to note that individual departmental projects are not included in this section of the plan due to its focus on the enterprise.

The cost of complying with the objectives and strategies defined in this plan and with the suggested IT policies and standards may be significant in some cases. The implementation phase of the plan, conducted by the City of Fayetteville IT Department, will include the development of an impact analysis which will identify potential costs associated with

implementing sections of the plan. A business case analysis will also assist in making determinations of project feasibility.

The following is a brief summary of the SWOT analysis:

### Strengths

- High-quality people resources within the Information Technology Department;
- A desire for increased technology investments among administration and departments;
- A single department overseeing the majority of technology infrastructure, hardware, and software;
- Substantial understanding of technology and its role in the organization across the County;
- World Wide Web presence for citizens, visitors, and employees; and,
- Use of Geographic Information Systems (GIS).

### Weaknesses

- Lack of redundancy with current infrastructure;
- Disaster recovery and business continuity planning;
- Customer service issues between Information Technology and customer departments;
- Communication issues within the IT department;
- Limited standardization across all departments (hardware, software, policies/procedures);
- Additional staffing needed for IT;
- Lack of governance structure; and,
- Training issues.

## Opportunities

- Enhanced communications between central IT and departments
- Establishment of IT Governance Structure to facilitate City-wide support for IT investments
- Co-development of Service Level Agreements and internal support policies and procedures
- Emerging technologies including workflow and electronic commerce;
- Growing partnerships with other local governments, state agencies, and private sector;
- Expanded network connectivity in the field;
- Providing enabling technology to field staff to support service delivery; and,
- Improving technology where current use is limited.

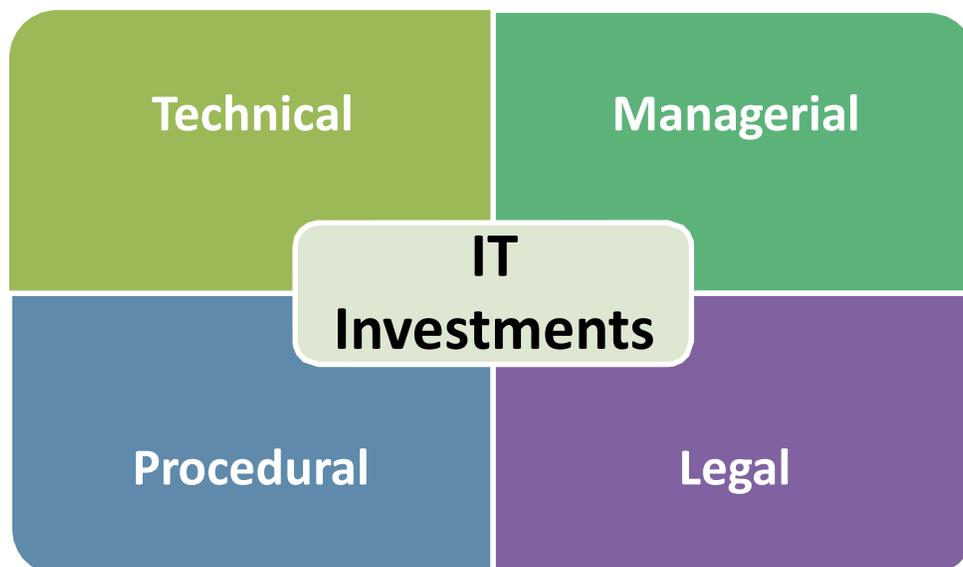
## Threats

- Security of technology, applications, data and networks;
- Reliability and security of data, especially data maintained outside centralized servers;
- Inability to manage and meet users' expectations;
- Departmental focus on technology investment versus enterprise focus;
- Short technology lifecycle (rapid pace of change);
- Reliance on individuals to maintain systems without established back-up procedures;
- Lack of disaster recovery and business continuity planning; and,
- State mandates and legal rulings affecting existing systems and new acquisitions.

## SECTION 6. ENTERPRISE STRATEGIC IT INVESTMENTS

The technology priorities center on specific categories of enterprise projects. The following list identifies the category and then specifies the request or need. It is recommended that the leadership of City of Fayetteville create priorities for the following projects in order to create appropriate budgetary requests, as well as develop a roadmap for the ascertainment of the mission-critical projects.

As the recommendations are presented, please refer to the following diagram to understand the multi-faceted nature of IT investments and how many areas outside of the IT department are critical to making such investments successful.



In the following pages, investments related to information technology will be offered for consideration. The recommendations are arranged into topical areas, including:

- ✓ Architecture, Infrastructure, and Hardware Projects
- ✓ Enterprise Software and Applications
- ✓ IT Governance and Structure
- ✓ Personnel
- ✓ Training
- ✓ Policies and Procedures
- ✓ Metrics

## Architecture, Infrastructure, and Hardware Projects

### Infrastructure Investment Opportunities

Connectivity and Network \* Virtualization \* Data Center \*  
Disaster Recovery \* Enterprise Architecture \* IT Investments

#### Connectivity and Network Extension:

Fiber and wireless networks are the future of the public sector. As the City continues to expand its service locations and increase service provision, it is essential that investments in capital technology infrastructure are included in such extensions. Clearly, fiber investments are critical to City of Fayetteville, in terms of connecting geographically dispersed governmental buildings and should be planned and budgeted for, as part of the capital budgeting process. It is especially critical to consider the installation of fiber loops across the City, particularly to remote locations, for redundancy, continuity of business operations, and public safety.

In areas where there is limited network connectivity or cost-prohibitive fiber installation, wireless investments (Wi-Fi, Wi-Max, or licensed spectrum point-to-point) may prove to be more cost-effective than fiber. In addition, the interest in the mobile workforce, as expressed by many departments, requires the utilization of existing wireless networks or the creation of new networks dedicated to public sector utilization. A variety of efforts at the federal level are increasing the opportunities for local governments to access dedicated public sector spectrum for use in the creation of such wireless networks. The application of wireless networks has demonstrated an incredible return on investment, in terms of man hours and citizen perceptions. As the network extensions occur, mobile applications that run on wireless networks should be increasingly procured.

#### Server Virtualization:

The City should invest in the consolidation and virtualization of its server environment. In server virtualization efforts, many small physical servers are replaced by one larger physical server, to increase the utilization of costly hardware resources such as CPUs. Server Virtualization will allow for a reduction in the total number of servers. As a general rule, one

virtualized server can replace up to ten servers. By creating a virtual server environment, City of Fayetteville can improve its total cost of server ownership through reduced hardware maintenance costs, and reduced energy costs. In addition, the movement to a virtual environment is essential for disaster recovery and business continuity.

#### **Virtual Desktop Infrastructure (Desktop Virtualization):**

Virtualization, as a technology, is fast becoming an in-demand technology solution for local governments. It allows for local governments to maximize current resources, which is an attraction in these challenging budgetary times. Virtualized Servers and Virtual Desktop Infrastructure (VDI) provide a quick response to the business needs of the organization. These projects also reduce the cost of business continuity planning and solve major security issues within the organization.

Virtual Desktops can extend the lifecycles of existing computers. Current desktop lifecycles are two to three years. By implementing a Virtual Desktop Infrastructure (VDI), computer lifecycles can be extended to five years or more. Desktop Virtualization will simplify the management of desktop computers. Virtual Machine (VM) Images can be created based upon the user and departmental needs. These images are stored on a central server and can be installed (pushed) onto desktop computer remotely. Desktops can be updated without having any downtime. VDI also saves money by reducing the amount of computing capacity that is needed for each desktop, which results in lower requirements for computing which then lowers overall energy cost for the organization.

#### **Data Center:**

City of Fayetteville needs to create a data center, in order to ensure continuity of business operations. The data center houses the City computer systems and associated components, such as telecommunications and storage systems. It should include backup power supplies, redundant data communications connections, environmental controls and security devices. The establishment of a data center should also include high-speed network redundancy, in the form of fiber connectivity, if possible.

#### **Disaster Recovery/Business Continuity (Planning and Infrastructure Redundancy):**

Disaster Recovery and Business Continuity Planning is critical to local governments. As the City begins to extend its technology investments, consideration of infrastructure and application continuity and redundancy must occur. City of Fayetteville needs a comprehensive Business Continuity Plan, supplemented by a Technical Disaster Recovery Plan, in order to ensure continuity of operations regardless of natural or man-made disasters, pandemics, or other large-scale operational events.

### **Enterprise Architecture and Service-Oriented Architecture:**

The current investment in Enterprise Architecture and Service-Oriented Architecture models across a variety of public and private sector institutions is worth mention. These models require that technology components are standardized and operate on common platforms. But, more importantly, the models encourage shared services, modularized and reusable application development, and improved communication within the enterprise. In addition, these models ensure the interoperability (ability to share information and resources) and communication among systems while reducing support and training costs and increasing employee skills and knowledge.

### **IT Investments within the Department:**

It is surprising to find that the IT Department in Fayetteville uses outdated and end of lifecycle equipment. IT Departments are learning laboratories and there is a significant need for the department staff to test new technologies as they are considered for implementation in the user departments. The City needs to ensure that adequate investments are being made to allow the IT staff to use new hardware and software as “test beds” for innovation. Additionally, providing current technology to the IT staff will increase staff satisfaction, potentially reduce turnover, and improve the success rate of enterprise technologies, due to a priori testing.

## Enterprise Software and Applications

### Application Investment Opportunities

Standardization \* Mobility \* GIS \* Document Imaging \* Financial Software  
Development Services \* Social Media \* Website \* Dashboard

#### Standardization of Applications and Data:

As the City continues to invest in technology to gain efficiencies, increase effectiveness, and enhance transparency and accountability, standardization becomes more critical. Stand-alone systems are still being used across City of Fayetteville departments, limiting the utility and cross-functionality of data sharing and importation between business units. City of Fayetteville should seek to standardize as many applications as reasonable, or at least standardize data elements in order to encourage seamless data transfer between applications. The first area of standardization should be concentrated on the MS Office Suite and Operating Systems. By moving to a City-wide standardized platform, there will be substantial increases in speed of deployment of systems, speed of upgrades, continuity between departmental offerings, and responsiveness of the IT department to customer needs.

In addition, the City should move to a standardized data environment where data is collected once and utilized many times. This “capture once, use many” concept reduce duplication, inconsistencies and errors. The standardization of data elements is often the most difficult policy to implement within disparate business units, but it allows the creation of centralized data warehouses, reduction in redundant data entry, and more effective management of information flows within the organization.

#### Mobile Access:

The most often requested application among all department heads and line staff is mobile access, including laptops, Blackberry-style devices, and a wireless network. Many City department heads and employees work from remote, field locations, and/or after-hours and desire the ability to access their programs and files through a VPN client or similar solution.

However, the security issues related to such remote access are important to address and can be managed through a combination of technical solutions and in-depth end user training.

### **Geographic Information Systems (GIS):**

City of Fayetteville, like governments across the United States, has become increasingly reliant on Geographic Information Systems (GIS) as a tool for visually displaying spatial information, making accurate decisions based on timely data, and forecasting potential opportunities and impacts on its services and citizens. However, the City needs to increase its GIS functionality and use across the organization. There are several specific steps for improving GIS in City of Fayetteville. First, the City needs to significantly increase the number of GIS staff within the IT department. Additionally, based on feedback from many City employees, additional licenses for GIS need to be purchased in order to allow greater use and dispersion of GIS across the various City departments. Finally, greater use of GIS within the departments will necessitate subject matter experts within departments, who will need greater functionality and flexibility within the GIS system.

### **Document Imaging and Management System:**

City of Fayetteville should invest in a document imaging and management system for enterprise use. This system enables the organization to create, profile, search, check out, check -in, save, and locate documents stored electronically. In most document management systems, the documents are profiled with attribute information and are retrievable using key words or phrases found in either the full text or the document profile. Version control, security, and storage management functions are also features that will benefit the City and should be part of the document management system.

### **Financial Software:**

There is a significant need to study the current financial software package to determine its comparison to more current financial software offerings. The Finance Department is satisfied with the JD Edwards system, but the other City departments are very dissatisfied with the software and its limited functionality. In addition, the Finance Director recognizes that many opportunities exist with new software packages, but there has been no pressing need to investigate other offerings. Given the limited support for JD Edwards, the City needs to undertake a study to determine what options exist to either enhance JD Edwards or find alternative software with greater utility.

### Development Services:

There is a significant need to invest in a comprehensive planning, zoning, and inspections software solution. Currently, the Magnet system is not satisfying the requirements of the department, due to duplicative data entry, limited user interface, and lack of training. The City needs to examine the functionality of Magnet and employee training needs to determine if the limitations can be remedied through training or if a different system is required. The IT department should not be the decision-making authority on this, or any departmental software projects. The IT department should provide the required City standards and offer technical review and feedback related to all software decisions.

### Social Media:

Across the country, local governments are utilizing Facebook, Twitter, Nixle, YouTube, and other forms of social media to engage their citizens, solicit feedback, and provide additional outlets for information. City of Fayetteville currently does not have an official social media presence, but should consider developing a presence, as well as policies to govern use of social media in the workplace.

In terms of social media presence, Facebook is the most commonly used application in government, with organizations choosing to create Fan Pages for information sharing purposes. Due to the current Facebook policies, individuals are allowed to comment on any postings made by the organization, therefore, it is advisable that City of Fayetteville create a Comments Policy that indicates the informative nature of the forum, as well as articulates what form of commentary is unacceptable and removable. A good sample of such a Comment Policy can be found on Fairfax City's website (<http://www.fairfaxCity.gov/opa/getfairfax/facebook-comments-policy.htm>).

### Website & Content Management:

The Website is the hallmark of the City, in terms of its public facing presence. Many departments are unsatisfied with the current content update and page creation process. It is recommended that the City assess its current website and business processes should be examined to determine how the website update process can be made more efficient, including investment in a Content Management System. In addition, pages targeted to specific events within the City which generate significant citizen, business, and visitor engagement opportunities should be included and streamlined.

**Project and Performance Dashboard for Administration & Council:**

Administration and City Council members seek to be more informed about the work within the City. As a result, many governments are moving toward project and performance dashboards, which give a high-level overview of various projects in a given government and indicate the status of the project, with respect to time, budget, and user satisfaction. The City of Fayetteville should consider investing in a dashboard system in order to engage in more transparent and accountable government.

## IT Governance and Structure (Internal Processes)

### Governance Investment Opportunities

Help Desk \* IT Governance \* Service Levels \* FCA  
Communications \* Project Justification \* Service Catalog

#### Help Desk:

The improvement of the current Help Desk structure is central to the success of the City of Fayetteville's IT Department. The Help Desk, when appropriately staffed with trained personnel, creates a knowledge base, develop usable performance metrics, and engage in business analytics. The City should invest in a Level One Help Desk technician who can answer calls with technical answers upon the initial customer contact. In addition, the implementation of this Help Desk format will lead to faster response times to end user problems, as well as better escalation patterns to be tied to the Service Level Agreements. In addition, the IT Department Help Desk staff need additional training on the Help Desk software. The software, HEAT, is very robust, but is currently not being utilized at its optimal level to provide root cause analysis and other pattern-based decision-making.

#### Information Technology Governance Structure:

IT Governance is becoming an increasingly important topic in the public sector. The role of the IT Governance is to ensure that IT is aligned with the business and delivers value, its performance is measured, its resources properly allocated and its risks mitigated. The IT Governance structure should be composed of department heads and senior leadership in order to assist the Information Technology Department with project prioritization, goal alignment, and risk management. Additional information and detail on the IT Governance Structure is provided in Appendix B.

### Service Level Agreements:

Many public sector agencies are moving toward the establishment of Service Level Agreements. SLAs are contracts between a customer and provider that indicate the terms of service that will be provided. For example, many Technology Departments create service level agreements with their internal customers (departments) in order to set standards around response time to requests, server uptime, or network reliability. City of Fayetteville should consider the role of SLAs in the organization, in particular, as a means of communicating customer service standards for internal clients.

### Full Cost Accounting:

Full cost accounting (FCA) is a systematic approach for identifying, summing, and reporting the costs incurred during the provision of IT services to City departments. The goal of this methodology is to provide accurate accounting of direct and indirect costs, as well as “hidden” costs associated with IT efforts. The major goals of cost accounting include: 1) Provide better information to executive management; 2) Provide better information to IT Services staff and customers; 3) Determine monthly and annual cost for each application/service and major project; 4) Develop accurate budget and funding for each system and project; 5) More efficient management of costs and resources; and, 6) Provide a basis for expense management. In Appendix C, there is an overview of FCA for consideration.

### Communications Process:

One area for improvement is communication, both internal and external to the IT Department. Improved communication tools and procedures are critical to the continued success of the City of Fayetteville IT Department. The culture within IT is improving, per staff surveys and interviews. However, the IT staff, inside and outside of the central IT Department, offer a unique opportunity to discern potential problems or challenge approaches, which can lead to improved processes and products upon completion. Furthermore, better communications will improve trust among staff, both with management and with peers.

In order to enhance communications within and outside of the IT Department, open meetings should be held regularly in order to encourage staff participation and involvement. An investment in and use of a City Intranet or other collaborative tools should allow ubiquitous employee access to project materials, contracts, purchase orders, and other forms of

documentation. Finally, IT leadership should develop consistent communications with other department heads, in order to increase knowledge of City policies and procedures. As the IT Department grows, it is essential for the senior IT staff to regularly meet with the City departments to determine their needs, analyze their business processes, and offer ideas for innovation and performance enhancement through technology solutions.

#### **Project Justification Methodology:**

City of Fayetteville needs a formalized project justification methodology that will be administered by the IT Governance structure. The project justification methodology should assess issues such as enterprise impact, timing of the project, cost of project, man hours required to complete, and mandatory nature (i.e. statutory requirement). Currently, the individual departments, due to the budgeting structure, are deciding which projects to undertake, without consistent input from the IT Department. Moving forward, the IT Department should have involvement in all decisions about technology investments in the City, but the oversight on project selection and prioritization needs to be conducted by the Governance structure noted above.

#### **IT Products and Services Catalog:**

The purpose of this initiative is educate new and existing employees regarding the availability of IT-related products and services, and policies and procedures related to the use of IT systems. This initiative includes creation of an on-line and hard copy catalog of IT-related products, services policies, and procedures for internal distribution including use at New Employee Orientations.

## Personnel

### Personnel Investment Opportunities

Business Analyst \* Power Users  
IT Staff Needs \* IT Skill Sets

#### Business and Process Analyst Model:

One noted process area of improvement within IT staffing can be facilitated by establishing a business and process analyst model within the Information Technology Department. In this model, IT staff will rotate between departments to assess business process, gain better working knowledge of daily operations, and partner with departmental staff to create technical solutions and enhancements to operational, tactical, and strategic issues. Essentially, the business and process analysts will assist in developing proactive solutions to business unit problems or challenges, versus the often reactive process used currently. The adoption of this model does presume an increase of IT Department's FTEs in order to achieve the level of service expected by the departments.

#### Establish IT Power Users Program:

The purpose of this initiative is to improve end user support and training for the City's various IT systems through identification, training, and support of Power Users. Power Users are City employees who are not in the IT department but are above average users of a particular IT application. This initiative includes identifying one or more Power User per department to address the City's many IT applications; identifying certification programs for Power Users for the various IT applications; establishing User Groups for the City's standard applications; and identifying means to reward Power Users.

### Staffing Needs within IT Department:

There is a clear need for additional staff within the IT Department. In order for the department to operate as a high-performing organization, individual staff need to have areas of expertise and specialization. In order to optimize the organization, the specialization of current staff indicates a need for training and certification among the IT staff, as well as an increase in staff to provide additional services to the end users in the departments. Specific positions that should be considered as priority investments include Help Desk technicians, GIS analysts, and business analysts. In addition, if the City proceeds with server and desktop virtualization, additional certified virtualization staff are necessary.

### IT Skill Sets:

As noted above, there is a significant training need among the current IT staff. As is common across local governments, training budgets are often cut in period of economic downturn. However, there is substantial research that indicates that training of IT staff can provide a 575% return on investment to the organization, due to reduced levels of rework and experimentation, as well as engender departmental service orientation. The training opportunities for the IT staff are critical to capitalizing on the strategic IT investments being made by City of Fayetteville.

### IT Staff Talents and Organization:

Beyond the basic training needs, the City IT Department has many highly qualified staff working in areas outside of their expertise. The department needs to conduct an asset inventory to determine where individual staff have strength and training, and then leverage those staff to assist on projects aligned with their expertise. The division of the staff between three groups, as well as the physical separation between the teams with the City Hall, has created a less-than-desirable working environment. A matrix approach to project delivery would create opportunities for collaboration and foster a team approach to the department's workload.

In addition, consideration should be given to the current physical location of the IT department. The location of the IT staff on different floors within City Hall has created a division within the department staff due to location. Furthermore, limited interaction between the teams has substantially limited creative, team-based problem solving throughout the department. If possible, the entire IT department should be located together on one floor. Additionally, regular meetings with all of the IT staff should be held to foster a team atmosphere.

## Training: End User and IT Staff

### Training Investment Opportunities

Legal and Regulatory \* End Users \* IT Staff \* Training Lab

#### Overall Training and Utilization of Current Investments:

City of Fayetteville has made significant investments in a variety of quality software applications. Prior to the procurement and deployment of new systems and applications, a concerted effort to increase end user utilization of the full functionality of such programs should be encouraged. Most individuals in any given organization only use about fifteen percent of a given software's functionality, and the end users in the City appear to have similar utilization rates, although some departments expressed significantly lower rates of utilization and understanding of deployed software functionality. End user training, as well as IT staff training, is critical to improving software functionality utilization rates.

#### Legal and Regulatory Compliance Training

An area of notable concern is related to the legal and regulatory compliance training for all City employees and elected officials. City of Fayetteville should consider implementing annual training on public records laws, City retention requirements, the North Carolina Identity Theft Protection Act of 2005, HIPAA and PHI compliance (related to personal health information), Red Flag Rules compliance, and PCI compliance (related to securing cardholder data in debit and credit transactions).

#### Training for End Users

Approximately sixty percent of the variance in technology project's success or failure can be attributed to the training available to end users. However, governments often view training dollars as expendable resources, not recognizing the connection between training and project success and return on investment. In order to increase technology adoption and to facilitate successful technology solutions for the departments, investments in end user training are critical. Investments should be made in a variety of technology areas, including the basic Microsoft Office suite, the email system, the calendaring system, enterprise packages such as

JD Edwards, shared technology resources (i.e., shared network drives, webmail), and department-specific packages. All new technology deployments should include a detailed training plan that addresses the variety of learning styles within the City. Training is critical and should be adequately funded using best-of-breed training approaches. A half-day mandatory technology training session for all new employees should be considered, along with additional continuing education opportunities to advance the base worker knowledge of City of Fayetteville systems.

### Training for IT Staff

City of Fayetteville has made significant investments in its IT professionals. However, that investment must be continued in order to maintain and update staff skill sets through the use of technical and non-technical training. In addition, with the rapid change of technology and the increasing complexity associated with information technology policies, procedures, and practices, it is critical that staff continue to engage in technical and managerial professional education opportunities. In fact, Gartner reports that training for IT staff produces a 575% cost savings to organizations by preventing re-work and faulty experimentation.

### Training Lab and Training Staff

Given the multiple City facilities, an investment in a centralized training lab (or a lab with mobile options) should be made. The creation of an in-house training lab will facilitate end user training, as well as increased the opportunities for employee engagement and participation. In addition to the training lab, a part-time trainer should be hired to supplement the current IT personnel. The addition of the training lab and trainer will reduce the total cost of outside training expenditures while further advancing the knowledge of City of Fayetteville employees. Furthermore, the lab can be used for regional training offerings which will bring together municipalities and nearby counties.

## Enterprise and Technology Policies and Procedures

### Procedural Investment Opportunities

Standardization \* Applications \* Data \* Security \* Acceptable Use \* Privacy

Upon review of the current technological status of City of Fayetteville and analysis of the proposed technology projects, there is demonstrated need for some policy changes and additions. The following is a summary of the policies that will assist the City in its implementation of future technology projects.

#### Standards Policies

The technology components of City of Fayetteville should be functioning on a common architecture and be standards-based. This will ensure the interoperability (ability to share information and resources) and communication among systems while reducing support and training costs and increasing employee skills and knowledge. Standardization will include hardware, software, and infrastructure.

#### Applications Policies

The City should move from “silo” applications to enterprise applications. City of Fayetteville has made some strides to standardize on a common platform and that work should be encouraged and extended into other arenas. Furthermore, plans for managing the lifecycle and replacement of systems should be put into place.

#### Data Policies

City of Fayetteville should move to a standardized data environment where data is collected once and utilized many times. This “capture once, use many” concept reduce duplication, inconsistencies and errors. In order to create a standardized data environment, common data elements need to be identified and named consistently across the organization.

**Security Policies:**

City of Fayetteville should invest in security technology to protect its data assets and manage its risks. The City should also move to a formalized security management structure and process. A formalized security structure and process allows for improvements in accountability, transparency, and risk management. Implementing an effective security practices and polices is an ongoing commitment by the organization. Good security practices and policies will require discipline and awareness by all employees of the City. In order to have effective security polices in the City, a security program should be put into place to enhance the culture of security and strengthen the security management process. However, an over-reliance on security is an equally detrimental issue. It is important to balance technology investments and end user satisfaction with security policies and procedures.

**Acceptable Use Policies:**

Acceptable Use Policies (AUP) or Fair Use Policies are designed to restrict the ways that a City network can be used. The City has created an AUP and the policy has been disseminated to the departments. In order for the AUP to be most effective, the City needs to offer training on the AUP during new employee orientation, as well as require an annual review of the policy by all City employees, along with a signed and dated document indicated that the review was completed.

**Privacy Policies:**

In addition to the various policies mentioned in this plan, it is important for the City to provide ongoing reminders about the lack of privacy on the City network, City-owned equipment, and City email system. The City should provide a reminder statement and acceptance requirement about limited employee privacy in order to access the City network or email system.

## Metrics

### Metrics

Internal Business Process \* Customer \* Learning

The following metrics are offered as a means to evaluate IT performance in City of Fayetteville.

#### ***Internal Business Process Metrics:***

- ✓ IT Support Cost per Employee: IT staff salary and fringes divided by the total number of City employees they support
- ✓ Compare the IT Support Cost per Employee to Local Private Support Firms (to determine if the cost is lower than outsourcing the work)
- ✓ IT Maintenance and Support Cost per Employee: same formula as above, but add in the total maintenance costs for the City and then divide by the total number of City employees

#### ***Customer/Stakeholder Metrics:***

- ✓ Customer Satisfaction Survey: conducted annually or every six months
  - a. Supplement this with monthly customer satisfaction surveys based on help desk tickets
- ✓ System Availability by application priority level: Measured as percentage of employees affected by outages, based on application priority level (as established by the IT Governance Group)
- ✓ Incident resolution within SLA target

#### ***Learning/Innovation Metrics:***

- ✓ Number of innovations implemented (divided by) Number of innovation ideas generated per IT employee over a given period
- ✓ Training days per employee: demonstrates increased skill-sets

## Policies and Administration of Enterprise Technology Efforts

Information Technology can be used to provide higher quality services in a more cost efficient manner by providing improved service access, reduced transaction costs, and improved internal efficiencies. As the City strives to be more customer-oriented and to provide effective services, technology investments become essential.

Despite the potential impact of technology, it is critical to understand that the application of technology to poor or inefficient processes will not produce the requisite cost savings or effectiveness gains. Technology is a tool used to improve customer service but the administration, policies, and procedures surrounding a given function or process must be revised and fine-tuned in order to provide the highest quality of service. As a result of this necessary coupling between technology and business process, it is imperative that all technology projects and investments are tightly integrated with and continually measured against the City's articulated business goals and vision.

Although technology investment is necessary as a means of maintaining efficient and effective services, as well as competing in the local government marketplace, several steps can be taken to ensure wise investments. First, a cost-benefit analysis of projects should be undertaken, along with a clear, multi-year understanding of the total cost of ownership for a given project. The total cost of ownership includes hardware and software maintenance, ongoing training, support and operations and allows the government to plan its expenditures in an appropriate manner without neglecting the funding requirements of the project in the years to come. In addition, upgrades and replacement plans for systems are imperative and must be included in the budget.

## Conclusion

The City of Fayetteville Strategic Information Technology Plan provides a framework for the effective management of IT. It offers a customer-focused approach to implementing and managing IT and uses employee suggestions to provide a roadmap for future technology efforts. The plan also includes a comprehensive view of City accomplishments over the past decade, as well as examines the current state of technology in City of Fayetteville and its peer local governments.

Recognizing the limited funding available for technology investments in the current economic state, there are several projects included in this strategic plan which can offer significant value-add to the City without additional financial investments. The projects listed below are offered for consideration based on potential impact for the City, limited cost to the City, and criticality to achieving the desired level of IT service to the City and its citizens, businesses, and visitors. The projects are also listed based on priority level ranking, but do not necessarily need to be conducted in sequential order.

First, the City should focus on improving the internal workings of the IT department. The focus of the internal improvements are multifold, including a clear commitment to customer service, cross-training and staff engagement, and increased staff training. The IT Department is a customer service organization and should be routinely evaluating customer satisfaction and offering training on customer service. Additionally, there are many opportunities to leverage the skills of IT staff in areas other than their current job classification. By increasing staff opportunities for engagement, the City can improve service offerings, while keeping IT staff expenditures at a constant rate. Although this recommendation is a high priority, it should be noted that utilizing existing staff in new ways does not preclude the need for expanding the IT Department's staff in the near future, especially in areas such as the Help Desk and GIS. Finally, the IT staff need additional training in many areas, especially virtualization, as it remains a high priority of the department. The training needs to be offered uniformly to all staff in order to foster knowledge creation and sharing.

Second, the City IT Department needs to create an IT Governance Structure. The IT Governance Structure will allow the City departments to offer input on IT investments, as well as create a vehicle for increasing stakeholder engagement and improving communications about technology across the City. The governance structure will also improve formal buy-in and support for technology investments. Currently, there is a perception that IT makes determinations about departmental IT projects, which is creating conflict and end user resistance. The governance structure will increase ownership of departmental and enterprise projects.

Third, the City IT Department should develop and implement a communication process for both internal department communications, as well as external communications to the departments. Much of the information needed by IT staff and end users is being shared in a limited fashion. The IT Department should conduct regular staff meetings with all IT staff, led by the CIO and Deputy CIO. In addition, “information radiators” such as an Intranet site should be established to allow all City employees access to information about IT projects, timelines, and other pertinent technology information.

Finally, as part of the IT Governance Structure, the City needs to create a clear methodology to evaluate enterprise technology projects. The process should include enterprise impact, consideration of cost, mission criticality, resource allocation, and future benefits/cost avoidance. The Enterprise Project Prioritization Process will be part of the role of the IT Governance Structure and will help ameliorate potential project bias or favoritism.

City of Fayetteville is a successful, technology-friendly government and should continue investing in technology to enhance the internal and external services of the organization. As the City keeps its eye on growth and the future, it is imperative that technology investments keep pace with that vision. City of Fayetteville is moving into another exciting period of growth and renewal and it is critical that technology serve as a tool for improving efficiency and effectiveness. Furthermore, technology will allow the City to grow quickly and respond to increase customer demands. The future of City of Fayetteville is encouraging and the administration and staff recognition of the value of IT only serves to enhance the potential of the City.

2015

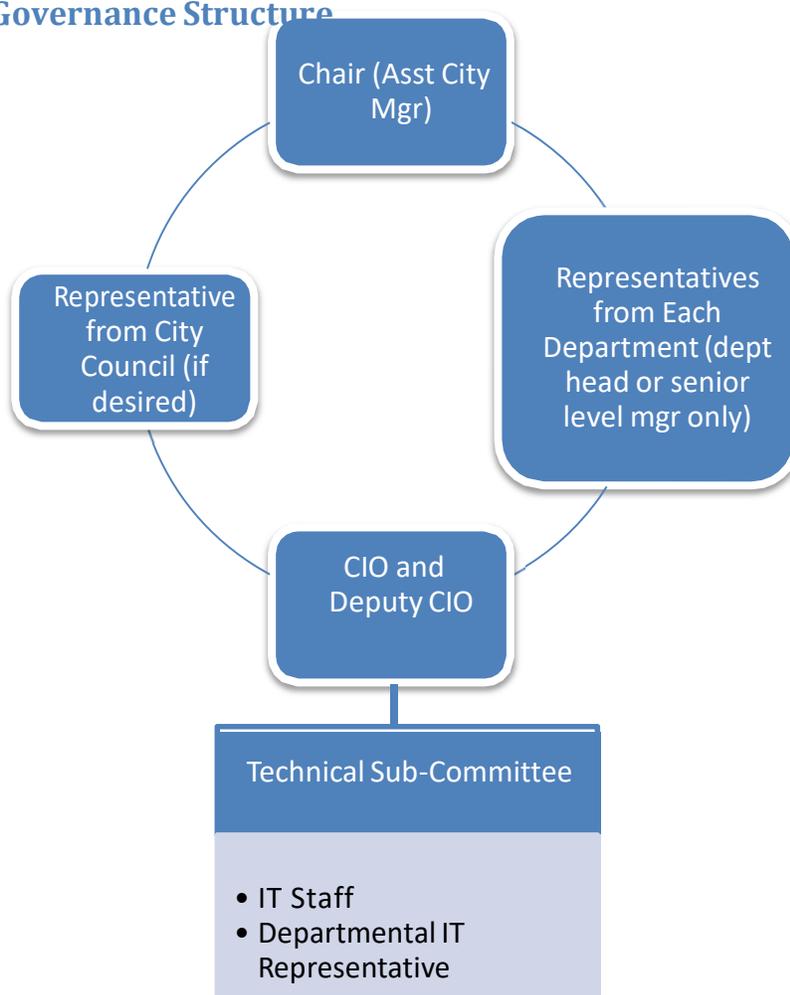
# Appendix A: IT Governance

## Appendix A: IT Governance

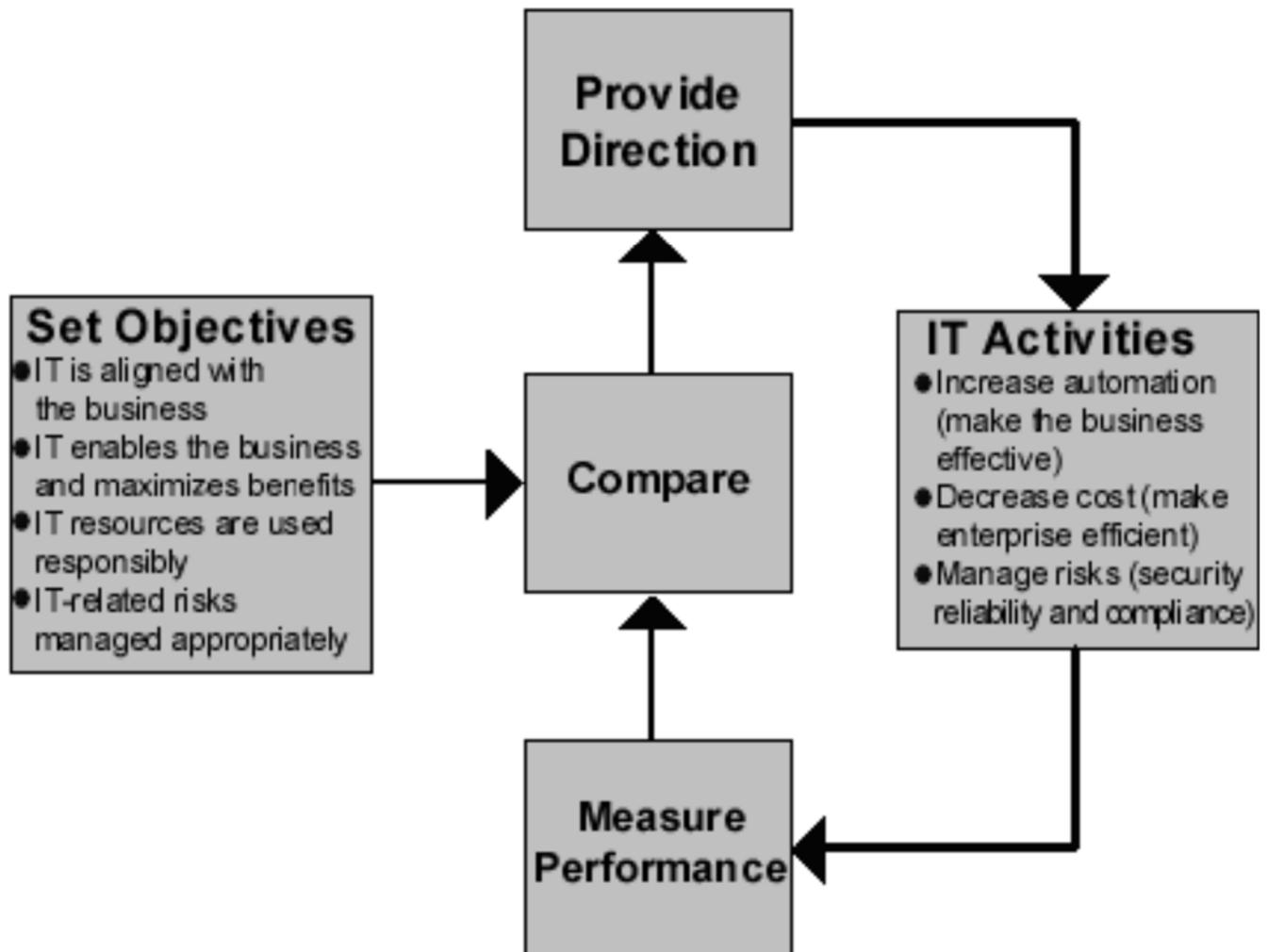
### Goals of IT Governance

- Align IT strategy with the organizational strategy
- Transmit IT strategy and goals down into the enterprise
- Provide organizational structure that facilitate the implementation of IT strategy & goals
- Develop and maintaining a system for portfolio management of IT Investments
- Measure performance and manage results

### Proposed IT Governance Structure



## IT Governance Process



# Information Technology Strategic Alignment

## City of Fayetteville

### Vision

An attractive, culturally diverse city with a rich heritage that is peaceful, prosperous and connected.

### Mission

Fayetteville provides resilient and sustainable municipal services in a cost effective manner to create a business friendly environment where citizens thrive and prosper.

## City Manager's Strategic Themes

Safe and Secure Community

Sustainable Organizational Capacity

High Quality Built Environment

Desirable Place to Live, Work and Recreate

Diverse and Viable Economy

Citizen Engagement & Partnerships

## Information Technology Vision

Be the preferred provider of technology solutions for the City of Fayetteville

## Information Technology Strategic Goals

Increase Customer Satisfaction

Business Transformation

Service Delivery

Strategic Partnership

## Information Technology Guiding Principles

Standardization

Business Process Performance

Infrastructure

Innovation

Open Government

Strategic Partnership

Community Impact

Sustainability

## Information Technology Core Competencies

Vendor Management	Talent Management	Business Enablement
Infrastructure Delivery & Management	Application Delivery & Management	
IT Governance	IT Performance & Value Demonstration	Security & Business Continuity Planning

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